International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

INTERNATIONAL JOURNAL OF MODERN EDUCATION (IJMOE)
www.ijmoe.com

EVALUATING INJURY PATTERNS, ON-FIELD MEDICAL INTERVENTIONS, AND PREVENTIVE STRATEGIES AT THE SERDANG SEVENS RUGBY TOURNAMENT

Mohamad Nizam Nazarudin[1*], Wan Ahmad Munsif Wan Pa[2]

[1] Faculty of Education, Universiti Kebangsaan Malaysia, Malaysia
Email: mohdnizam@ukm.edu.my
[2] Faculty of Education, Universiti Kebangsaan Malaysia, Malaysia
Email: munsif@ukm.edu.my
[*] Corresponding Author

Article Info:

Article history:
Received date: 30.09.2025
Revised date: 15.10.2025
Accepted date: 11.11.2025
Published date: 01.12.2025

To cite this document:

Nazarudin, M. N., & Wan Pa, W. A. M. (2025). Evaluating Injury Patterns, On-Field Medical Interventions, And Preventive Strategies at the Serdang Sevens Rugby Tournament. *International Journal of Modern Education, 7* (28), 37-50.

DOI: 10.35631/IJMOE.728005

Abstract:

The Serdang Sevens Rugby Tournament, held at Universiti Putra Malaysia, provided a valuable dataset for examining rugby injury patterns, medical interventions, and preventive strategies in a competitive setting. This study aims to analyse the prevalence, types, and mechanisms of injuries sustained during the tournament, evaluate the effectiveness of on-field medical management, and propose evidence-based injury prevention strategies tailored to the Malaysian rugby context. A retrospective observational analysis was conducted using official medical reports from the two-day tournament. The findings indicate that head and knee injuries accounted for 21% each, followed by facial and shoulder/clavicle injuries at 18% each. The most common injury types included soft tissue trauma, fractures, and concussions, with 34.5% of cases requiring hospital referrals. High-impact tackles emerged as the primary cause of injuries (70% of cases), while falls on uneven surfaces contributed to 30% of injuries. Medical interventions played a crucial role in managing injuries, with 65.5% of cases effectively treated on-site. However, the reliance on hospital referrals for severe injuries underscores the need for improved on-field diagnostic capabilities, such as portable imaging tools. The study identifies targeted warm-up routines, enhanced protective gear, and improved playing surface conditions as key preventive measures to reduce injury risks in future tournaments. The findings align with global research on rugby injuries, particularly regarding the prevalence of concussions and lower-limb injuries. However, localized factors, including field conditions and limited access to advanced medical resources, present unique challenges for Malaysian rugby. This research contributes to a growing body of knowledge on rugby injuries in Southeast Asia, offering data-driven recommendations to enhance player safety. Future studies should explore longitudinal impacts of rugby injuries and

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

the integration of advanced diagnostic technologies, such as wearable sensors and portable ultrasound.

Keywords:

Rugby Injuries, Concussion, Trauma, Sports Medicine, Serdang Sevens

Introduction

Tourism Rugby is a high-intensity, contact-oriented sport that demands endurance, agility, teamwork, and tactical intelligence. These characteristics make rugby not only engaging but also pedagogically significant in educational and developmental contexts. Through structured participation, rugby can serve as a platform for experiential learning where athletes acquire discipline, leadership, and social cooperation (Eime et al., 2013; Vella et al., 2017). Within university- and school-based sports education, these experiential dimensions align with holistic learning frameworks that emphasize physical literacy, social development, and resilience. However, the same factors that make rugby educationally enriching also introduce substantial injury risks, especially when physical, cognitive, and tactical demands intersect in competitive settings.

Modern rugby, characterized by high-speed collisions, repeated accelerations, and rapid decision-making, places considerable biomechanical stress on players (Fuller et al., 2019; Falvey et al., 2021). The sport's physical nature exposes participants to acute injuries such as fractures and concussions as well as chronic musculoskeletal strains. These injuries are not only medical concerns but educational challenges, as they disrupt learning continuity, performance development, and athlete motivation. Embedding injury-prevention education within sports programs is therefore vital to ensuring safe participation and sustained athlete engagement (Emery & Pasanen, 2019).

The Serdang Sevens tournament, hosted at Universiti Putra Malaysia, provided an authentic educational and research platform for injury analysis within a competitive yet learning-centered environment. The tournament's diverse participant pool, spanning multiple age groups and skill levels, mirrored the inclusive objectives of Malaysian university sports. Such real-world contexts enable educators, coaches, and sports medicine professionals to identify patterns of injury occurrence, evaluate treatment protocols, and refine pedagogical interventions. Research in this area is essential, as localized data can inform safer training curricula, enhance student-athlete welfare, and bridge the gap between sports education and applied health sciences (Nazarudin et al., 2022).

Despite rugby's inherent risks, participation is still encouraged in educational settings for its transformative benefits. Empirical studies have demonstrated the sport's role in cultivating self-regulation, teamwork, and emotional intelligence, core outcomes aligned with the objectives of physical education curricula (Crane & Temple, 2015; Vella et al., 2017). However, these benefits are fully realized only when safety education and injury management frameworks are systematically embedded in sports pedagogy. The educational dimension of rugby thus extends beyond skill execution; it encompasses fostering an informed awareness of physical limits, safety protocols, and medical literacy among players.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Globally, injury research in rugby has advanced significantly, with Fuller et al. (2019) and Falvey et al. (2021) identifying head and upper-limb trauma as recurring issues. Similarly, recent youth-focused studies, such as Nazarudin et al. (2022), underscore the prevalence of soft-tissue injuries, abrasions, and sprains, even in non-contact sports like touch rugby. These findings challenge the misconception that reduced physical contact equates to safety, suggesting instead that agility-based sports demand equal attention to injury prevention. Educational frameworks must therefore integrate sports medicine principles such as proper warm-up routines, neuromuscular conditioning, and field-surface assessment into coaching modules and student-athlete orientation programs (Emery & Pasanen, 2019; Meyers, 2017).

Locally, however, research on rugby injuries in Malaysia remains sparse. The lack of context-specific data on amateur and youth tournaments limits educators' and policymakers' ability to develop evidence-based safety modules. As highlighted by Hassan et al. (2021), disparities in infrastructure, environmental conditions, and medical access create unique local vulnerabilities. The All-Girls Touch Rugby Championship 2024 study (Nazarudin et al., 2022) further revealed that young athletes frequently suffer from preventable soft-tissue and overuse injuries, attributable to inadequate warm-ups, poor landing mechanics, and limited neuromuscular training. These findings have direct implications for physical education programs, suggesting that safety awareness and injury literacy should be systematically incorporated into rugby coaching syllabi.

This research builds on such precedents by analysing medical data from the Serdang Sevens to identify the prevalence, types, and causal factors of rugby-related injuries. Beyond documenting injury patterns, this study situates injury analysis within an educational framework emphasizing the pedagogical responsibility of coaches, teachers, and sports administrators to foster safer, evidence-informed sporting environments. The ultimate goal is to enhance player safety, inform curricular reforms in sports education, and promote lifelong participation through informed, injury-conscious practice.

Research Problem

As rugby continues to expand across Malaysian educational institutions, from secondary schools to universities, the urgency for comprehensive injury surveillance becomes evident. While international studies provide foundational insights, the local learning environment presents distinctive conditions, such as a tropical climate, uneven turf, and resource constraints, that affect injury frequency and management (Meyers, 2017). These contextual differences underline the need for Malaysia-specific evidence to inform policy, curriculum, and coaching education.

The Serdang Sevens 2024 tournament offers a critical opportunity to bridge this knowledge gap by serving as a living laboratory for data-driven learning. Yet, without structured documentation, the lessons drawn from such tournaments risk being underutilized in future coaching and teaching practices. Key educational questions arise:

1. What types of injuries are most prevalent in Malaysian rugby tournaments?
2. How effective are on-field treatments and medical responses in a university-level learning environment?
3. What preventive education strategies can be localized to ensure player welfare and sustainable participation?

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Fuller et al. (2019) and Falvey et al. (2021) highlight global injury trends, and localized findings by Nazarudin et al. (2022) reveal that environmental and biomechanical factors, such as synthetic turf friction and limited neuromuscular control, exacerbate lower limb injuries. Furthermore, adolescent players, whose bodies and cognitive control systems are still developing, are particularly susceptible to such injuries (Ramachandran et al., 2024). For educators and coaches, this underscores the need for a developmentally appropriate training pedagogy that balances performance goals with safety education and recovery management.

From a broader educational perspective, this research problem extends beyond medical observation. It concerns the creation of learning ecosystems that embed risk literacy, self-protection skills, and injury-prevention knowledge into sport curricula. The integration of such competencies aligns with Malaysia's aspirations for holistic education under the Pelan Pembangunan Pendidikan Malaysia (PPPM), which emphasizes well-being, resilience, and lifelong learning. Hence, by contextualizing injury data within rugby education, this study not only contributes to sports science but also advances a safer, more informed culture of physical learning.

Literature Review

The study of rugby injuries has evolved considerably over the past decade, with increasing emphasis on understanding injury mechanisms, preventive education, and athlete welfare. Rugby's inherent physicality, marked by collisions, sprinting, and sudden changes in direction, makes it one of the most injury-prone sports worldwide. Fuller et al. (2019) conducted a comprehensive review revealing that head and upper-limb injuries dominate rugby-related trauma, accounting for nearly 40% of all reported cases. Concussions, in particular, represent a growing concern due to their long-term neurological implications (Falvey et al., 2021). These medical realities have reshaped the educational approach to coaching and officiating, transforming safety instruction from an auxiliary topic into a central pillar of rugby pedagogy.

In response, World Rugby and national governing bodies have instituted stringent concussion and injury management protocols. These include baseline neurocognitive testing, mandatory rest periods, and stepwise return-to-play programs designed to reduce cumulative trauma (White et al., 2021). However, compliance with such measures varies greatly, particularly in developing rugby nations where medical resources, structured education, and awareness remain limited. This disparity highlights an urgent need to strengthen coach and referee education, emphasizing not only technical rules but also injury literacy, the capacity to recognize, respond to, and prevent injury through informed decision-making.

Youth Rugby and Developmental Vulnerabilities

Youth rugby introduces distinct challenges that extend beyond physiological factors to encompass cognitive, social, and pedagogical dimensions. Adolescents are undergoing rapid musculoskeletal and neuromotor development, rendering them more susceptible to ligamentous and overuse injuries (Vella et al., 2017). For instance, knee and ankle sprains frequently occur during rapid directional changes or tackles, often compounded by fatigue and inadequate warm-up preparation. Importantly, injuries during adolescence can have educational repercussions, leading to fear of participation, reduced confidence, and potential dropout from organized sports (Crane & Temple, 2015). This underscores the need to integrate injury-prevention education into early coaching modules, promoting awareness and resilience within physical education curricula.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Psychologically, Vella et al. (2020) noted that injury experiences in young athletes often influence self-efficacy and motivation. Educators and coaches thus serve a dual role: physical trainers and psychological facilitators. Logan et al. (2019) added that performance pressure and emotional stress can impair decision-making, heightening injury risk. Consequently, psychological skills training such as self-regulation, focus control, and confidence building should complement physical conditioning in youth rugby programs. This holistic approach aligns with the Educational Competence Framework, which views competence as a synthesis of knowledge, skill, and attitude (Shavelson, 2010).

Localized Insights and Malaysian Context

In Malaysia, research on rugby injury surveillance is limited but emerging. Hassan et al. (2021) found that fractures and ligamentous injuries are prevalent among youth players, yet medical readiness at tournaments remains inconsistent. Similar concerns were identified in the All-Girls Touch Rugby Championship 2024 study (Nazarudin et al., 2022), which examined adolescent female athletes during a two-day national competition. Despite being a non-contact variant, the study reported significant rates of soft-tissue injuries (52%), abrasions (24%), and sprains (14%). These findings challenge the assumption that "touch" formats inherently reduce injury risk. Instead, they reveal how factors such as neuromuscular inefficiency, poor field conditions, and a lack of structured warm-up routines contribute to increased injury susceptibility.

From an educational standpoint, these findings illuminate the need for structured injury-prevention pedagogy within Malaysia's school and university sports systems. Coaches and physical educators should be trained to teach safe movement patterns, proprioceptive awareness, and recovery routines. As Nazarudin et al. (2022) emphasized, preventive interventions such as neuromuscular training, safe playing surfaces, and age-appropriate warm-ups are not only performance tools but also learning mechanisms that foster self-discipline, risk management, and teamwork among youth athletes. These outcomes correspond with the holistic learning aims of Malaysia's *Kurikulum Standard Pendidikan Jasmani dan Kesihatan (KSPK)* and higher education sport science programs.

Preventive Strategies and Educational Integration

Globally, preventive strategies have shifted toward biomechanical training and structured conditioning. Emery and Pasanen (2019) demonstrated that neuromuscular programs, including dynamic warm-ups and proprioceptive drills, significantly reduce the risk of ligamentous injuries. Similar findings were reported in PESSR (2022), which identified neuromuscular deficits as a leading cause of injury among youth touch rugby players. Integrating these protocols into educational contexts transforms them from isolated sports science concepts into applied learning activities. When physical education emphasizes *how and why* prevention works through reflective practice, video analysis, and peer feedback, students not only learn to move safely but also to think critically about their bodies and decisions.

Protective equipment, such as padded headgear and shoulder supports, has also contributed to reducing impact severity (White et al., 2021). However, as Nazarudin et al. (2022) argue, equipment alone is insufficient without the cognitive and behavioral understanding that underpins its use. Hence, the role of educators extends beyond technical compliance to include cultivating a safety culture, a mindset in which students internalize the value of self-care and situational awareness. This educational transformation aligns with the broader objectives of

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

sports pedagogy: developing not only competent athletes but informed, resilient, and responsible individuals.

The reviewed literature collectively underscores that rugby injury prevention transcends medical management; it is a pedagogical imperative. Globally, studies provide robust frameworks for injury surveillance and prevention, yet localized implementation remains a challenge in Malaysia. The PESSR (2022) findings and related research suggest that embedding injury prevention into education through neuromuscular training, coach development, and psychosocial learning can enhance both performance and safety outcomes. By integrating empirical evidence with educational strategies, this study aims to foster a sustainable, informed rugby culture that prioritizes learning, safety, and athlete development.

Research Objectives

1. To identify the most common injuries sustained during the Serdang Sevens.
2. To assess the effectiveness of on-field medical management.
3. To propose evidence-based preventive strategies for future tournaments.

Methodology

Participants

This section provides a comprehensive description of the study participants, including key demographic details and specific inclusion or exclusion criteria. A total of 483 players participated in the Serdang Sevens tournament; however, only those who sustained injuries during the event were included as respondents in this study.

Research Design

This study employed a retrospective observational design to achieve its research objectives: identify the most common injuries sustained during the tournament, evaluate the effectiveness of on-field medical management, and propose evidence-based preventive strategies for future events. The methodology was structured by established injury surveillance and analysis frameworks (Emery & Pasanen, 2019). Data collection was based on official medical reports recorded throughout the two-day tournament. These reports provided detailed information on player demographics, injury types, mechanisms of injury, and treatment approaches. Injuries were categorized into four main groups: concussions, fractures, soft tissue injuries, and other trauma types, following established classification models in sports medicine (Fuller et al., 2006).

Statistical Analysis

Descriptive statistical methods were employed to analyze injury frequency and distribution across various body regions. The study quantified the prevalence of specific injuries, such as head trauma and knee ligament damage, and explored patterns based on player demographics, including age and field position. The effectiveness of on-field medical interventions, including immediate care techniques (e.g., ice therapy, bandaging) and cases requiring hospital referral, was also assessed (Trevail et al., 2024). The outcomes of these interventions were compared against benchmarks from recent literature (McDermott et al., 2021; Stathas et al., 2024).

International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

To identify underlying injury mechanisms, factors such as high-impact collisions, scrums, and falls were examined. Additionally, the potential influence of environmental conditions, including field surface quality, was analyzed in alignment with prior research on injury risk factors (Robertson et al., 2022).

Findings from this study were synthesized to develop preventive strategies specifically tailored to the Malaysian rugby context. These recommendations incorporated insights from international research, including the implementation of dynamic warm-up routines (Emery & Pasanen, 2019), improvements in protective equipment (Vella et al., 2020), and enhancements in safety protocols during tournaments (Logan et al., 2019).

This methodological approach ensures a systematic and evidence-based understanding of injury trends and management outcomes, ultimately contributing to enhanced player safety and injury prevention in rugby tournaments.

Findings

The analysis of injuries sustained during the Serdang Sevens rugby tournament highlighted distinct patterns of injury distribution, hospital referrals, underlying causes, and treatment modalities. These insights provide a comprehensive understanding of the risks associated with competitive rugby and the effectiveness of medical interventions employed during the event.

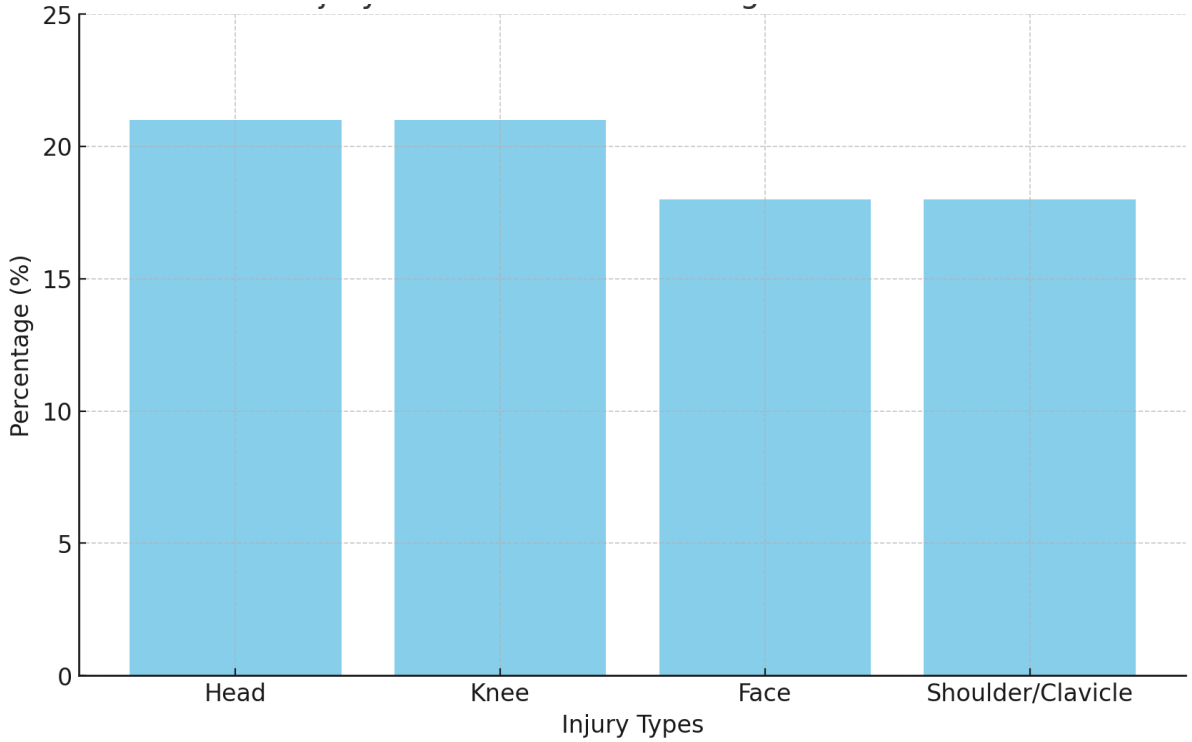
Injury Distribution

Table 1 illustrates the proportional distribution of injuries across four major categories, with head and knee injuries accounting for the highest percentages. Injuries were predominantly observed in four key body regions, reflecting the physical demands and risks inherent in rugby. Head injuries, which accounted for 21% of all cases, were primarily cerebral concussions caused by high-impact collisions. These findings align with global research emphasizing the prevalence and severity of concussions in contact sports (Falvey et al., 2021). Similarly, knee injuries, also comprising 21% of recorded cases, were largely ligamentous injuries and contusions resulting from sudden directional changes and tackles. The high prevalence of knee injuries underscores the biomechanical stress exerted on players during dynamic movements, consistent with findings by Emery et al. (2019).

Facial injuries constituted 18% of total cases, involving lacerations and fractures, such as zygomatic injuries. These injuries were primarily caused by falls and unintentional impacts during gameplay, highlighting the vulnerability of the face during intense physical interactions. Shoulder and clavicle injuries, accounting for another 18%, included clavicular fractures and shoulder dislocations, often stemming from the forceful nature of scrums and tackles. Together, these injury patterns emphasize the critical need for targeted preventive strategies to reduce risks in these vulnerable areas.

International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Table 1. Injury Distribution at Serdang Sevens



Injuries were predominantly observed in four key body regions, reflecting the physical demands and risks inherent in rugby. Head injuries, which accounted for 21% of all cases, were primarily cerebral concussions caused by high-impact collisions. These findings align with global research emphasizing the prevalence and severity of concussions in contact sports (Falvey et al., 2021). Similarly, knee injuries, also comprising 21% of recorded cases, were largely ligamentous injuries and contusions resulting from sudden directional changes and tackles. The high prevalence of knee injuries underscores the biomechanical stress exerted on players during dynamic movements, consistent with findings by Emery et al. (2019).

Facial injuries constituted 18% of total cases, involving lacerations and fractures, such as zygomatic injuries. These injuries were primarily caused by falls and unintentional impacts during gameplay, highlighting the vulnerability of the face during intense physical interactions. Shoulder and clavicle injuries, accounting for another 18%, included clavicular fractures and shoulder dislocations, often stemming from the forceful nature of scrums and tackles. Together, these injury patterns emphasize the critical need for targeted preventive strategies to reduce risks in these vulnerable areas.

Hospital Referrals and Transport

Diagram 2 highlights the proportion of injuries that required hospital care (34.5%) versus those managed on-site (65.5%), emphasizing the effectiveness of immediate medical interventions.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

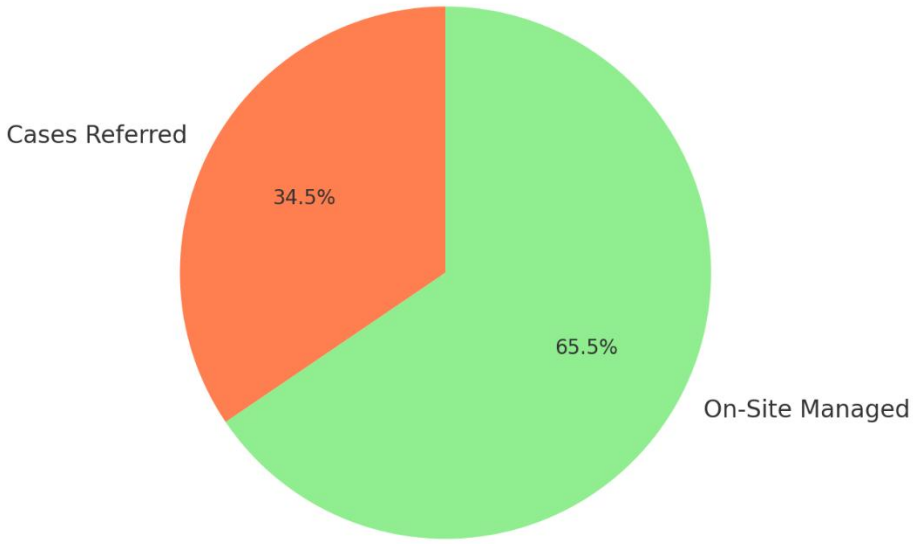


Figure 1. Hospital Referrals vs On-Site Managed Cases

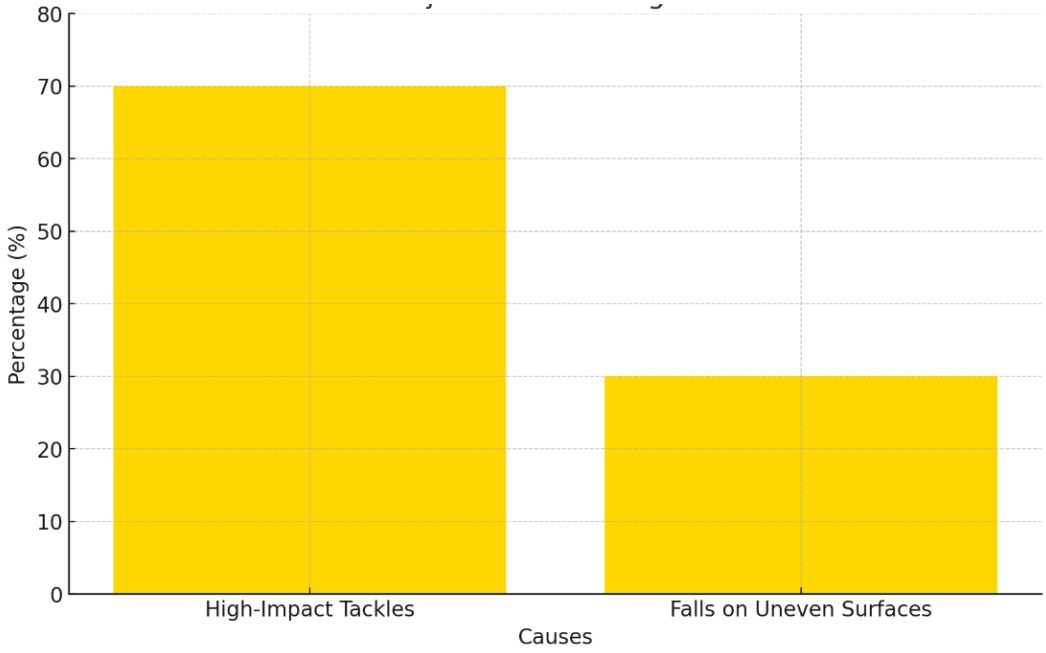
Of the 29 recorded injuries, 34.5% (10 cases) required hospital referrals due to their severity. These included complex cases such as significant lacerations, suspected fractures in the clavicle, nasal bones, and radius, as well as infraorbital swelling. The remaining 65.5% (19 cases) were effectively managed on-site with immediate medical interventions. The ability to stabilize a majority of injuries highlights the preparedness and skill of the on-field medical teams, though the proportion of hospital-referred cases underscores the limitations of current on-field diagnostic capabilities.

Cause of Injuries

Table 3 depicts the primary injury causes, with high-impact tackles as the leading contributor at 70%. The primary causes of injuries were high-impact tackles and falls on uneven surfaces. High-impact tackles**,** responsible for 70% of cases, emerged as the leading cause of concussions, knee injuries, and shoulder trauma. The physical nature of rugby, characterized by frequent and forceful tackles, places significant strain on the body and increases the risk of injury. Falls on uneven surfaces**,** accounting for 30% of injuries, exacerbated the frequency of facial injuries and other soft tissue trauma. This finding underscores the importance of maintaining safe playing conditions to minimize environmental risks, as emphasized by Fields et al. (2021).

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Table 3. Causes of Injuries at Serdang Sevens



Treatment Modalities

Immediate care strategies played a pivotal role in managing injuries during the tournament. Wound cleaning and bandaging were commonly used to treat abrasions and lacerations, stabilizing wounds and protecting them from further contamination. Immobilization techniques, such as splinting and bracing, were critical in suspected fractures and dislocations, preventing additional damage before hospital transport. For cases referred to hospitals, advanced diagnostics and surgical interventions were necessary, particularly for complex fractures and severe concussions. These findings highlight the effectiveness of on-field medical teams while underscoring the need for improved diagnostic tools to better manage severe injuries.

In summary, the Serdang Sevens demonstrated clear injury patterns linked to the physical demands of rugby, with head, knee, facial, and shoulder injuries being the most prevalent. High-impact tackles and environmental factors, such as uneven surfaces, were significant contributors to these injuries. While on-field medical interventions proved effective in managing the majority of cases, reliance on hospital referrals for severe injuries underscores the need for improved on-site diagnostic capabilities and preventive strategies. By addressing these challenges, future tournaments can enhance player safety and optimize medical care.

Discussion

The findings from the Serdang Sevens tournament underscore significant trends in rugby injuries, reflecting both global patterns and context-specific challenges. These findings align closely with the research objectives, providing actionable insights into injury prevalence, medical management, and preventive strategies. Head injuries, including cerebral concussions, were among the most common injuries, representing 21% of all cases. This finding is consistent with global research that highlights concussions as a significant concern in rugby, given their potential for long-term neurological impacts (Falvey et al., 2021). The recurrence of knee

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

injuries, also at 21%, emphasizes the sport's biomechanical demands, particularly the rapid directional changes and high-intensity tackles inherent to the game. Facial injuries (18%) and shoulder/clavicle injuries (18%) further illustrate the physicality of rugby, with high-impact collisions and falls contributing significantly to these cases.

These results suggest that specific body regions are at heightened risk due to the nature of play, reinforcing the need for targeted prevention strategies. The prevalence of head injuries underscores the importance of adhering to concussion management protocols, including baseline testing and gradual return-to-play guidelines (White & Gissane, 2021). The on-field medical teams demonstrated commendable effectiveness in managing injuries during the tournament. Immediate care, including wound cleaning, bandaging, and immobilization, addressed 65.5% of cases on-site, highlighting the preparedness of medical personnel. However, 34.5% of cases requiring hospital referrals indicate the limitations of current on-field diagnostic capabilities. This finding aligns with Fields et al. (2021), who advocate for portable imaging devices to enhance immediate injury assessment and reduce unnecessary referrals.

Additionally, the effectiveness of medical management was evident in the handling of severe cases, such as suspected fractures and concussions. However, the need for advanced diagnostic tools, particularly for head and joint injuries, remains a critical gap. Incorporating portable ultrasound or digital X-ray devices into on-field medical kits could significantly enhance diagnostic accuracy and treatment efficiency (Emery et al., 2019). The findings support the implementation of several preventive strategies to reduce injury risks in future tournaments. Enhanced warm-up routines, including dynamic stretching and neuromuscular training, are essential to mitigating ligamentous injuries, particularly in the knees and ankles. Such protocols have been shown to reduce injury rates by up to 30% in similar settings (Vella et al., 2020).

The use of protective gear, such as padded headgear and improved mouthguards, is another critical measure. These tools can minimize the severity of impacts during tackles and scrums, reducing the incidence of head and facial injuries. Field conditions also emerged as a significant factor, with uneven or debris-laden surfaces contributing to falls and related injuries. Routine inspections and maintenance of playing fields should therefore be a standard practice for tournament organizers (Fields et al., 2021). Education programs for athletes and coaches represent an additional preventive avenue. Training on proper tackling techniques and injury recognition can empower players to adopt safer practices and seek timely medical attention when needed. Educational initiatives have been shown to enhance compliance with safety protocols, particularly among younger players (Logan et al., 2020).

Environmental factors, such as playing surface quality, played a notable role in injury causation. Uneven fields contributed to falls, particularly those resulting in facial and lower-limb injuries. Ensuring debris-free, level surfaces is critical to minimizing these risks. Organizers should implement routine inspections and enforce maintenance protocols to uphold safety standards (Fields et al., 2021). Technology offers an untapped opportunity to enhance injury prevention and management. Wearable devices that monitor player impact forces and portable diagnostic tools for on-field use could revolutionize rugby safety. Future studies should explore the feasibility and efficacy of these technologies in competitive settings.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

Conclusion

The Serdang Sevens tournament provided valuable insights into injury patterns, medical management, and preventive strategies in rugby. The findings reaffirm the global prevalence of head and knee injuries while highlighting local challenges, such as environmental factors and resource limitations. By implementing evidence-based measures, such as enhanced warm-ups, protective gear, field maintenance, and education programs, stakeholders can significantly reduce injury risks and improve player safety. Two key areas of research merit attention to further enhance the understanding and management of rugby-related injuries. These areas address gaps in current knowledge and propose advancements that could significantly impact player safety and overall well-being.

Rugby is a high-impact sport where injuries such as concussions and ligamentous damage are common. However, the long-term effects of these injuries on players' health and performance remain underexplored. Future research should investigate the chronic impacts of these injuries through longitudinal studies. By tracking recovery trajectories and assessing long-term complications, researchers could gain valuable insights into the prolonged effects of head and musculoskeletal injuries. This information would be critical for developing optimized rehabilitation protocols and tailored preventive measures. For instance, studies could examine whether recurrent concussions predispose players to cognitive decline or if untreated ligamentous injuries increase the risk of chronic joint instability and osteoarthritis. Such findings would not only inform medical practices but also provide evidence for policy changes in rugby safety standards.

The integration of advanced diagnostic technologies in rugby tournaments presents a promising avenue for improving injury management. Portable diagnostic tools, such as handheld ultrasound devices and wearable impact sensors, could revolutionize on-field medical care. These technologies offer the potential to provide immediate and accurate assessments of injuries, reducing reliance on hospital referrals for diagnostic imaging. For example, wearable sensors could monitor impact forces during gameplay, alerting medical teams to potential concussions even before visible symptoms appear. Similarly, portable ultrasound devices could aid in diagnosing fractures, soft tissue injuries, or internal bleeding on-site, enabling timely interventions.

Future studies should evaluate the effectiveness of these technologies in real-world rugby settings, examining their accuracy, cost-efficiency, and practicality. The findings from such research could guide resource allocation and inform the adoption of innovative tools in sports medicine, ultimately enhancing player safety and reducing the burden on healthcare systems. By focusing on these two critical areas, future research can address the long-term challenges of rugby injuries while leveraging technological advancements to improve immediate care. Together, these efforts will contribute to a safer and more sustainable rugby environment.

Acknowledgment

The authors express their sincere gratitude to Salbross Sports for their exceptional support in facilitating the research activities undertaken in this study. Their commitment to organizing and coordinating the Serdang Sevens Rugby Tournament was pivotal in enabling smooth data collection and ensuring that research procedures were effectively implemented. The authors also wish to acknowledge the dedication of the medical personnel, tournament organizers, coaches, and athletes whose participation made this study possible. Their collaboration and

International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005

professionalism were instrumental in generating meaningful data that advances injury prevention strategies and promotes player safety in youth sports.

References

Alahmad, T. A., Kearney, P., & Cahalan, R. (2020). Injury in elite women's soccer: A systematic review. The Physician and Sportsmedicine, 48(3), 259–265.

Crane, J., & Temple, V. (2015). A systematic review of dropout from organized sport among children and youth. European Physical Education Review, 21(1), 114–131.

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents. International Journal of Behavioral Nutrition and Physical Activity, 10(1), 98.

Emery, C. A., & Pasanen, K. (2019). Current trends in sport injury prevention. Best Practice & Research Clinical Rheumatology, 33(1), 3–15.

Falvey, É. C., O'Connell, D., & Murphy, M. (2021). Concussion management in contact sports: An evolving evidence base. British Journal of Sports Medicine, 55(5), 235–240.

Falvey, É., Tucker, R., Fuller, G., & Raftery, M. (2021). Head injury assessment in rugby union: Clinical judgement guidelines. BMJ Open Sport & Exercise Medicine, 7, e000986. https://doi.org/10.1136/bmjsem-2020-000986Emery, C. A., Roy, T.-O., & Whittaker, J. L. (2019). Neuromuscular training in youth sports: A meta-analysis. British Journal of Sports Medicine, 53(6), 313–318.

Fields, S. K., Comstock, R. D., & Spinks, A. B. (2021). Environmental impact on youth sports injuries. American Journal of Sports Medicine, 49(4), 915–922.

Fuller, C. W., Brooks, J. H., & Kemp, S. P. (2019). Injury risk in rugby: Systematic review. British Journal of Sports Medicine, 53(9), 573–580.

Fuller, C. W., Ekstrand, J., Junge, A., Andersen, T. E., Bahr, R., Dvorak, J., Hägglund, M., McCrory, P., & Meeuwisse, W. H. (2006). Consensus statement on injury definitions and data collection procedures in studies of football (soccer) injuries. British Journal of Sports Medicine, 40(3), 193–201.

Hassan, M., Yusof, A., & Abdullah, R. (2021). Rugby injuries in Malaysian youth tournaments. Asian Journal of Sports Medicine, 12(3), e115675.

Logan, K., Cuff, S., & Council on Sports Medicine and Fitness. (2020). Organized sports and psychosocial outcomes among children and adolescents. Pediatrics, 145(4), e20190997.

Meyers, M. C. (2017). Incidence, mechanisms, and severity of match-related collegiate men's soccer injuries on FieldTurf and natural grass surfaces: A 6-year prospective study. The American Journal of Sports Medicine, 45(3), 708–718.

Nazarudin, M. N., Tan, Y. Q., Okilanda, A., Ockta, Y., & Nugraha, R. (2022). Medical observations and injury analysis: All-Girls Touch Rugby Championship 2024. Physical Education and Sport: Studies and Research, 1(1), 1–20.

Ramachandran, A. K., Pedley, J. S., Moeskops, S., Oliver, J. L., Myer, G. D., & Lloyd, R. S. (2024). Changes in lower limb biomechanics across various stages of maturation and implications for ACL injury risk in female athletes: A systematic review. Sports Medicine, 54(7), 1851–1876.

Vella, S. A., Cliff, D. P., Magee, C. A., & Okely, A. D. (2020). Sports participation and psychological and social outcomes among youth: A scoping review. Journal of Sport and Exercise Psychology, 42(1), 34–49.

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 37-50
DOI: 10.35631/IJMOE.728005
Vella, S. A., Swann, C., Allen, M. S., Schweickle, M. J., & Magee, C. A. (2017). Bidirectional associations between sport involvement and mental health in adolescence. Medicine & Science in Sports & Exercise, 49(4), 687–694.

White, P., & Gissane, C. (2021). Risk mitigation in rugby: The efficacy of warm-ups and protective equipment. Sports Health, 13(5), 432–438.