COMPETITOR:
JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
e-ISSN: 2657-0734 & p-ISSN: 2085-5389 ‖ Volume 17, Number 2, 2025 ‖ P.704-710

The Impact of Sports Injuries on Athlete Performance

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ABSTRACT

Injuries that occur to a person's body during exercise are caused by physical activity that can cause injury, disability, or damage to muscles or joints, as well as other parts of the body, Injuries that occur to a person's body while exercising doing certain exercises, sports injuries are not only rapid damage that occurs during exercise, such as strains on the body's soft tissues, but also overuse syndrome, which is caused by continuous exercise with inconsistent movements or postures that cause clinical symptoms, Such as functional overreaching or non-functional overreaching is used to describe the performance or performance of athletes or athletes. This condition affects the healing process and the training load on the athlete. In addition, overtraining syndrome is divided into two clinical categories: sympathetic and parasympathetic. More than 50% of athlete injuries involve the lower extremities, and on average sports injuries occur more during matches than during training, An athlete's recovery process takes longer If this is not handled properly, it will hurt the athlete's performance.

ARTICLE HISTORY
Received: 2025/04/12
Accepted: 2025/05/20
Published: 2025/06/15

KEYWORDS
Athlete;
injuries;
Sports;
Performance;
Health.

AUTHORS' CONTRIBUTION
A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Azahra, A; Farhanah, Shafazila Nisa; Nurfauziah, Erika; Setiawan, Muhammad Arief; Aulia, Dany . (2025). The Impact of Sports Injuries on Athlete Performance. **Competitor: Jurnal Pendidikan Kepelatihan Olahraga**. 17 (2), p.704-710

INTRODUCTION

Sports, as an essential domain of human physical expression and competitive endeavour, have increasingly become a cornerstone of both individual and national development. Athletic performance, often the measure of physical prowess, mental resilience, and tactical intelligence, is at the heart of sports success at every level (Soligard et al., 2016). From grassroots development to elite professional arenas, athletes are constantly challenged to perform at their best. However, one of the most persistent and debilitating barriers to consistent performance is the occurrence of sports injuries.

Injuries in sports are not merely physical setbacks; they disrupt training cycles, affect psychological states, hinder team dynamics, and often compromise long-term

athlete development (Bahr & Krosshaug, 2005). Injuries can affect both professional and amateur athletes and have the potential to derail careers, end seasons, or permanently impair athletic capacities. Sports injuries are now considered a public health issue, with significant implications not only for sports organizations but also for healthcare systems and national productivity (Emery & Pasanen, 2019).

The nature and extent of sports injuries vary across disciplines. Contact sports like football, rugby, and basketball are more prone to acute traumatic injuries such as ligament tears, fractures, and concussions, whereas non-contact sports such as long-distance running or swimming are commonly associated with overuse injuries like tendinopathy or stress fractures (Fuller et al., 2006). Athletes' susceptibility to injury is influenced by numerous intrinsic factors such as age, sex, body composition, prior injury history, neuromuscular control, and biomechanical deficiencies, along with extrinsic factors like training loads, playing surfaces, equipment, and coaching quality (Gabbett, 2016).

When an injury occurs, it initiates a cascade of consequences: withdrawal from training, rehabilitation periods, loss of match fitness, reduced technical and tactical efficacy, and, importantly, psychological strain. Moreover, the return-to-play (RTP) decision becomes a critical determinant of performance sustainability and recurrence prevention (Creighton et al., 2010). There is growing evidence that injured athletes experience a decline in performance metrics even after medical clearance due to residual deficits in strength, proprioception, or confidence (Klügl et al., 2010; Ardern et al., 2014).

Recent advancements in sports medicine and rehabilitation sciences have contributed significantly to injury prevention and performance recovery. Multidisciplinary models involving physiotherapists, sports scientists, psychologists, and data analysts are increasingly used to design comprehensive RTP protocols (Ekstrand et al., 2020). Nevertheless, despite these innovations, injury rates remain high in various sports, raising the need for more evidence-based intervention strategies.

The primary concern for athletes, coaches, and sports organizations is the multifaceted impact of injuries on performance. While clinical studies have examined the physiological and biomechanical aftermath of injuries, there is a lack of integrated understanding that connects the physical, psychological, and tactical disruptions caused by injuries to performance decline. Moreover, the timeline and predictors of performance restoration post-injury are not fully understood across different sports contexts (Taberner et al., 2019).

Another key issue is the underestimation of "minor" injuries or microtrauma that accumulate over time. These often go unreported or inadequately managed, yet they significantly impair motor execution and reduce competitive edge (Windt et al., 2017). In professional sports, pressure to return quickly often leads to premature RTP and subsequent reinjury, thus extending the time to optimal performance recovery (Toohey et al., 2019).

Several systematic reviews and meta-analyses have addressed injury epidemiology and rehabilitation strategies (Lauersen et al., 2014; van Mechelen et al., 2018). However, few studies have provided longitudinal insights into how injuries affect actual competitive performance over time. Additionally, limited research has explored athlete-

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centred perspectives on performance expectations after injury, particularly in developing countries where access to rehabilitation infrastructure is limited.

Furthermore, most existing literature tends to isolate physical or psychological domains rather than exploring the intersection between somatic recovery and mental readiness. The long-term tracking of post-injury performance trajectories remains largely uncharted territory, especially within amateur and semi-professional settings (Bittencourt et al., 2016).

This study offers a comprehensive examination of the direct and indirect impacts of sports injuries on athlete performance, drawing from both qualitative athlete narratives and quantitative performance indicators. Unlike prior works that often treat injuries as isolated clinical episodes, this research positions injuries as critical disruptors of the athlete lifecycle, affecting short-term performance, career progression, and psychological resilience.

By incorporating a multi-dimensional framework—encompassing physical, tactical, and psychological domains—this study also introduces a performance-integrated injury model (PIIM) that charts the dynamic relationship between injury incidence and performance variables over time. It brings novelty by investigating contextual variables, such as sport type, competitive level, injury severity, and recovery duration, to offer predictive insights into post-injury performance outcomes.

Given the high prevalence of sports injuries and their multifactorial consequences, this study aims to explore the following central question: How do sports injuries affect athlete performance in the short and long term across different types of sports? The research objectives include:

1. Identifying the types and frequencies of injuries in selected sports.
2. Assessing the short- and long-term impacts of injuries on key performance indicators (e.g., speed, agility, accuracy, strength).
3. Analyzing psychological consequences of injury on motivation, confidence, and return-to-play readiness.
4. Exploring athlete narratives and coach perspectives on performance after injury.
5. Proposing a model for performance-based injury management in athletic development programs.

The insights derived from this research are expected to contribute significantly to the fields of sports science, coaching, and athletic health management. By better understanding the complex relationship between injury and performance, stakeholders can enhance both preventive and rehabilitative strategies to foster sustainable excellence in sports.

METHODS

This research uses literature (review of scientific articles), and case studies of athletes about the impact of injuries on athlete performance, provides insight to

athletes, coaches, and medical personnel about the impact of injuries on sports, raises awareness about the importance of injury management in the world of sports, and becomes a reference for further research or studies on athlete performance post-injury.

RESULTS AND DISCUSSION

The Impact of Injuries on Athletes can affect many aspects of an athlete's ability. Physical impacts that often occur due to sports injuries include:

1. Decreased Muscle Strength: As a result of a muscle or tendon injury, such as a strain or ligament tear, muscle strength may decrease. This prevents athletes from training at the same intensity as before they sustained the injury (Ekstrand et al., 2020).
2. Decreased Agility and Speed: Injuries to joints or ligaments, such as an ACL tear, often reduce an athlete's agility, causing them to lose speed and be unable to move freely during matches or training.
3. Long Physical Recovery: Certain injuries take a long time to recover from, such as bone fractures, which can take months to heal. Taking improper recovery measures may cause athletes to lose more time to recover and reduce their ability to participate in competitions.
4. Case Study: Anterior Cruciate Ligament (ACL) Injury ACL injuries are one of the most common injuries sustained by athletes, especially those who play sports such as soccer and basketball. ACL injuries usually require a long recovery time, often more than six months. During this period, athletes concentrate on physical and mental recovery to return to the field with the best possible performance (Ardern et al., 2019).

Sports Injuries The Psychological Impact of Injuries on Athletes: Sports injuries not only have physical effects but can also affect an athlete's performance. Some of the psychological effects that sports injuries can have include:

1. Uncertainty and Stress: Seriously injured athletes often experience uncertainty about the future of their careers. Stress can interfere with recovery.
2. *Fear of Re-Injury: Many athletes are afraid to return to full-intensity competition after recovering from an injury, which can reduce their performance in matches* (Forsdyke et al., 2020).
3. Depression and Hopelessness: Long-term injuries can leave athletes feeling isolated from their sporting community, which can lead to depression and loss of motivation.
4. Case Study: Psychological Impact of Injuries on Soccer Athletes: For example, many professional soccer players face a lot of psychological stress after suffering an ACL or Achilles injury. However, research shows that athletes who receive psychological support from sports psychologists recover faster and are more likely to return to their best after an injury (Buckthorpe & Roi, 2018).

Effective strategies for the rehabilitation and recovery of athletes are essential to speed up recovery and ensure athletes can return to competition with the best level of

performance. In sports injury rehabilitation, some of the steps that are usually taken include: Physiotherapy Program: Physiotherapy is an important part of injury rehabilitation to restore muscle strength and flexibility and improve the range of motion of the affected joints.

1. Progressive Training: With strengthening exercises performed gradually, athletes can increase their muscle strength without overloading them.
2. Re-injury Prevention: Athletes should be trained to prevent re-injury after returning to training. This should include balance, coordination and flexibility exercises (Myer et al., 2017).
3. Studi Kasus: Rehabilitasi Cedera pada Atlet Bola Basket: Sebagai contoh, beberapa pemain bola basket profesional yang mengalami cedera ACL menjalani rehabilitasi yang mencakup latihan untuk meningkatkan keseimbangan, meningkatkan kekuatan otot paha depan dan belakang, dan meningkatkan fleksibilitas lutut. Case Study: Injury Rehabilitation in Basketball Athletes: For example, some professional basketball players who sustained ACL injuries underwent rehabilitation that included exercises to improve balance, increase quadriceps and hamstrings muscle strength, and improve knee flexibility.

CONCLUSION

In conclusion, athletes often experience sports injuries, which can affect their physical and psychological performance. Injuries have physical effects such as loss of strength, speed and flexibility. Psychological effects may include stress, fear and even depression. An athlete's career can be disrupted by injury, which can lead to a decreased desire to train and compete. To help athletes get back to their best, a proper rehabilitation and recovery process should include both physical and psychological care. To reduce the risk of injury to athletes, a systematic and organized injury prevention program is essential, Based on the above analysis, it can be concluded that sports injuries have a significant impact on athletes' ability to perform. Therefore, injury management should be given greater attention to injury prevention and rehabilitation.

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