INTERNATIONAL SEVEN JOURNAL
OF MULTIDISCIPLINARY
ISSN: 2764-9547

EFFECTIVE REHABILITATION STRATEGIES FOR MUSCLE INJURIES IN FOOTBALL PLAYERS

https://doi.org/10.56238/isevmjv1n1-014

Receipt of the originals: 03/01/2022 **Acceptance for publication:** 25/01/2022

Giulliana Iafrate da Fonseca

ABSTRACT

The rehabilitation of muscle injuries in football players is a pivotal area of sports physiotherapy, addressing the intense physical demands and high injury rates associated with the sport. Muscle injuries often arise from factors such as overload, muscle imbalances, and improper techniques, impacting athletes' performance and career longevity. To optimize recovery, evidence-based methodologies are crucial, allowing physiotherapists to create personalized rehabilitation programs tailored to the specifics of each injury. Central to effective rehabilitation is a thorough functional assessment, which identifies specific deficits in players. Techniques such as electrotherapy and therapeutic ultrasound are effective in accelerating healing and reducing pain, while functional taping provides support without restricting movement. Neuromuscular rehabilitation is equally vital, incorporating proprioceptive exercises to enhance stability and prevent future injuries. The multidisciplinary approach, involving collaboration between physiotherapists, medical professionals, nutritionists, and coaches, ensures comprehensive care for athletes. Psychological support also plays a key role in addressing anxiety and fostering a positive mindset during recovery. Recent studies underscore the importance of accurate diagnosis and individualized treatment plans, utilizing frameworks like the PRICE principle and specific rehabilitation protocols that facilitate faster and safer returns to play. The literature indicates a gap in understanding among team managers regarding the role of sports physiotherapy, highlighting the pressure players face to return prematurely, which increases the risk of re-injury. In summary, successful rehabilitation of muscle injuries in football necessitates a comprehensive, personalized approach that integrates physical, nutritional, and psychological elements. As research continues to evolve, these strategies will enhance the effectiveness of rehabilitation programs, ensuring football players can recover fully and maintain optimal performance levels.

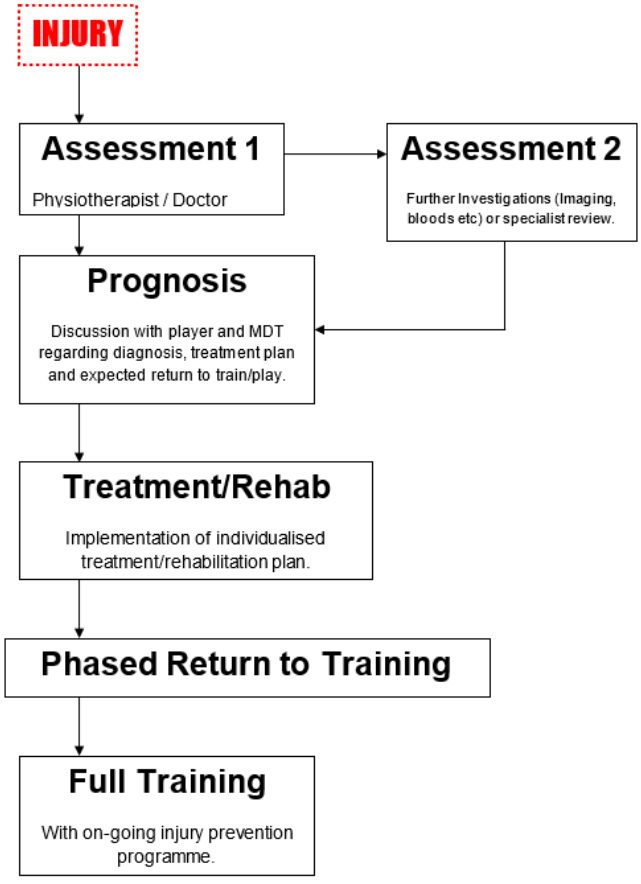
Keywords: Muscle Injuries. Rehabilitation. Sports Physiotherapy. Evidence-Based Practice. Multidisciplinary Approach.

INTERNATIONAL SEVEN JOURNAL
OF MULTIDISCIPLINARY
ISSN: 2764-9547

INTRODUCTION

The rehabilitation of muscle injuries in football players is a fundamental area of sports physiotherapy, especially considering the intensity and physical demands of the sport. Such injuries often occur due to factors such as overload, muscle imbalances, and inadequate techniques, affecting not only the athletes' performance but also their careers. In this sense, innovative methodologies in physiotherapy are essential to optimize recovery and ensure a safe and effective return to the field.

Figure 1: Injury diagnosis and rehabilitation process.



Source: The Football Physio.

Among the approaches, evidence-based physiotherapy stands out, combining clinical practices with current research. This integration allows physiotherapists to develop personalized programs, adapting interventions according to the type and severity of the injury. A detailed functional assessment is crucial to identify specific deficits in the player, enabling the implementation of exercises that address the injury while also improving overall muscular performance.

Additionally, the use of techniques such as electrotherapy and therapeutic ultrasound has proven effective in accelerating healing and reducing pain. These technologies help improve blood circulation and tissue regeneration, facilitating a faster and more efficient recovery. Another resource that has gained popularity is the use of functional taping, such as kinesio tape, which provides muscle support without restricting movement, allowing athletes to remain active during rehabilitation.

Neuromuscular rehabilitation is also an important aspect for restoring muscle function and preventing new injuries. Training programs that incorporate proprioception and balance exercises, along with plyometric and agility exercises, are essential for enhancing neuromuscular response and joint stability, factors crucial for on-field performance.

The multidisciplinary approach represents a significant advancement in the rehabilitation of muscle injuries. Collaboration among physiotherapists, doctors, nutritionists, and physical trainers ensures that all aspects of the athlete's health are considered. Proper nutritional planning can complement recovery by providing the necessary nutrients for muscle regeneration and reducing inflammation.

Another point to consider is the integration of psychological strategies in rehabilitation, which is becoming increasingly relevant. Psychological support helps athletes cope with anxiety and fear of returning after an injury, promoting a positive mindset, which is essential for complete recovery.

The studies by Ueblacker, Haensel, and Mueller-Wohlfahrt (2016) address the prevalence of muscle injuries in professional football, which can have traumatic or overload causes and directly impact post-injury care regimens and prognosis. An accurate diagnosis is crucial for specific treatment and can predict return-to-play (RTP). Although current treatment principles lack a solid scientific basis, initial treatment generally follows the PRICE principle (protection, rest, ice, compression, and elevation). Specific physical and physiotherapeutic procedures, along with rehabilitation exercises, are employed to restore coordination and proprioception, normalizing movement patterns.

Injectable therapy with various substances is often used, showing positive empirical results, although consistent evidence in the form of randomized prospective studies is still scarce. It is essential to develop an accurate rehabilitation plan for each muscle injury, including recommendations for sport-specific training with increasing

intensity. Regular follow-up examinations of the muscle's current status are crucial to assess healing progress and determine when the injured muscle can be exposed to new load levels. This report analyzes the various factors that a medical team should consider during the assessment, treatment, and rehabilitation of muscle injuries, with a particular emphasis on professional football.

The study by Vladymyrov et al. (2022) discusses a multifactorial approach to restoring muscle volume and rehabilitating football players after sports injuries. The researchers emphasize the implementation of electrical muscle stimulation in a magnetic field, as well as the effects of electromagnetic radiation in the visible or infrared spectrum on the injured muscle area. Comparative studies were conducted in two groups of football players rehabilitating from ankle injuries. The first group followed an approved protocol that utilized the MIT-FM device, combining medication and physiotherapeutic procedures with electromagnetic wave therapy. The second group used a protocol developed by the authors, which combined the methods of the first group with photoelectric magnetic muscle stimulation, presenting myofascial impulses and individualized current settings. Data analysis indicated positive clinical outcomes in both groups, with the main conclusion being the creation of a rehabilitation protocol for lower limb injuries, demonstrating greater recovery potential compared to existing protocols.

The study by Silva et al. (2022) highlights the prevalence of knee injuries among football athletes, particularly anterior cruciate ligament (ACL) injuries, which can result in significant complications and keep players out of the sport due to functional difficulties. The authors emphasize that a thorough kinetic-functional diagnosis, conducted by a physiotherapist, is the essential first step to developing a therapeutic plan tailored to the specific needs of the patient. The risk of injuries increases due to the high training and game loads faced by professional players throughout the year, compromising physical health and athletic performance. This study explores the role of physiotherapy in treating ACL injuries, highlighting their incidence among football players. A bibliographic review was conducted in databases such as SciELO, PubMed, PEDro, and Google Scholar, focusing on studies published between 2012 and 2022. The results highlight the effectiveness of physiotherapeutic approaches in sports rehabilitation, emphasizing their role in injury prevention and recovery, improving muscle function, relieving pain, and facilitating a safe return to athletic activities.

The study by Taberner and Cohen (2018) analyzes the common occurrence of hamstring strain injuries (HSIs) in professional sports, with an emphasis on the musculotendinous junction as the most frequently affected site. The authors discuss the implications of MRI findings, which show that the tendon extends into the muscle belly, highlighting the need for greater awareness of intramuscular tendon injuries. While some experts suggest the need for surgical intervention for these injuries, there is no consensus on their management. The study emphasizes the high risk of re-injury upon returning to competition and the importance of clinical decisions guided by functional goals for effective rehabilitation. The authors present a detailed rehabilitation plan for a Premier League player who suffered an intramuscular injury to the proximal tendon during a match, aiming to improve tensile strength, elastic stiffness, and cross-sectional area. Key components included isometric exercises for the hamstring, progressing from simple movements to more complex activities, all aimed at enhancing neuromuscular performance. The player successfully returned to competition after 120 days, remaining injury-free for 13 months following the rehabilitation program.

The study by Keyan (2019) investigates evidence-based treatment protocols for clinical management of injuries in football, highlighting the multifaceted role of sports physiotherapists in injury prevention, treatment, education, and exercise. The author emphasizes that the practice of stretching before and after exercise can reduce the risk of injuries and alleviate muscle soreness. Rehabilitation is structured into four phases: the first focuses on controlling pain and swelling through rest, ice, compression, and elevation; the second aims to increase strength and flexibility with initial isometric exercises; the third involves progressive training to restore strength, flexibility, proprioception, and endurance; and the final phase is dedicated to functional exercises, allowing a return to sport without pain. The study also points out a gap in the literature regarding team managers' understanding of the critical role of sports physiotherapy, noting that players often face pressure from management and fans to return to play before fully recovering, increasing the risk of re-injury.

The investigation by Mendiguchia et al. (2017) assesses the effectiveness of a rehabilitation algorithm based on individualized and multifactorial criteria for hamstring injuries in football players, compared to a generic protocol. The authors developed a protocol that integrates principles of evidence-based medicine and specific rehabilitation techniques. The methodology involved defining clinical criteria for return to sport (RTP),

including strength, range of motion, and functionality, to guide interventions. The rehabilitation team implemented a progressive and individualized program, focusing on strengthening and the function of the hamstring muscle. The results demonstrated that the criteria-based approach led to a faster and safer RTP, highlighting the importance of personalizing rehabilitation interventions for football players.

In conclusion, the rehabilitation of muscle injuries in football players is a critical aspect of sports physiotherapy, necessitating a multifaceted and evidence-based approach. The interplay of innovative methodologies, including personalized rehabilitation programs, advanced therapeutic techniques, and a multidisciplinary team, enhances recovery and optimizes athletic performance. Studies highlight the importance of accurate diagnosis, individualized treatment protocols, and the integration of psychological support to address both physical and mental aspects of recovery.

As the prevalence of muscle injuries in professional football continues to rise, the focus on effective rehabilitation strategies becomes paramount. Emphasizing early intervention, continuous assessment, and a gradual return to sport, these strategies not only aid in recovery but also help prevent re-injury, ensuring athletes can perform at their best. Ultimately, a comprehensive understanding of injury mechanisms, combined with tailored rehabilitation protocols, will contribute to the long-term health and success of football players, paving the way for advancements in sports medicine and physiotherapy practices.

REFERENCES

1. Keyan, K. (2019). Evaluating team managers' knowledge and attitude and importance the role of sports physiotherapy in Indian football teams. *Surgery & Case Studies: Open Access Journal.* https://doi.org/10.32474/scsoaj.2019.02.000146

2. Mendiguchia, J., Martínez-Ruiz, E., Edouard, P., Morin, J., Martínez-Martínez, F., Idoate, F., & Méndez-Villanueva, A. (2017). A multifactorial, criteria-based progressive algorithm for hamstring injury treatment. *Medicine & Science in Sports & Exercise*, 49, 1482–1492. https://doi.org/10.1249/MSS.0000000000001241

3. Silva, T., Araujo, G., Caetano, R., Mota, A., Araujo, R., Junior, J., Silva, A., Pereira, N., Gomes, B., Fróes, I., Alves, I., Pereira, S., Soares, D., Rocha, E., Pinheiro, W., & Barros, N. (2022). Physiotherapeutic performance in the treatment of anterior cruciate ligament injuries in soccer athletes. *International Journal of Advanced Engineering Research and Science.* https://doi.org/10.22161/ijaers.911.19

4. Taberner, M., & Cohen, D. (2018). Physical preparation of the football player with an intramuscular hamstring tendon tear: clinical perspective with video demonstrations. *British Journal of Sports Medicine*, 52, 1275–1278. https://doi.org/10.1136/bjsports-2017-098817

5. Ueblacker, P., Haensel, L., & Mueller-Wohlfahrt, H. (2016). Treatment of muscle injuries in football. *Journal of Sports Sciences*, 34, 2329–2337. https://doi.org/10.1080/02640414.2016.1252849

6. Vladymyrov, O., Chukhraiev, N., Shmorgun, A., Zukow, W., Maliuta, V., & Chukhraieva, O. (2022). Polyfactorial approach in rehabilitation of football players' muscles after sports injuries. *Journal of Education, Health and Sport.* https://doi.org/10.12775/jehs.2022.12.01.017