

Principles of Rehabilitation and Return to Sports Following Injury



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KEYWORDS

- Athletic injuries • Return to sport • Rehabilitation • Sports medicine

KEY POINTS

- Rehabilitation of athlete after lower extremity injury requires thorough evaluation and understanding of the demands of the sport.
- Few protocols exist to guide the physician in helping the athlete returning to sport.
- Protocols and plan of care must be individualized and constantly reevaluated to maximize return to sport and decrease the incidence of re-injury.
- A multidisciplinary team is often required to better treat athletes and permit a prompt return to sport.

INTRODUCTION

Injuries to the foot and ankle during athletic activities are a common occurrence, representing approximately 25% of all sports injuries seen in sports medicine specialty clinics.¹ Elite and recreational athletes who suffer from such injury will be faced with the inability to participate in sports, and for professional athletes, such injury can lead to a lack of income. Whether conservative measure or surgical correction is necessary for the treatment of the athlete, a well-planned rehabilitation program is essential to ensure a successful treatment and return to sport. The most efficient and successful treatment plan can be futile if the athlete is not properly reintroduced to his or her sport.

Treating athletes successfully should surpass usual treatment protocol. An added step needs to be implemented because the physical demands on an athlete's lower extremity is beyond the tasks of daily living; it requires the ability to endure strenuous physical loads that are specialized for each individual's sports. It is therefore imperative to have a thorough understanding of the necessary steps to take to get a patient and athlete beyond healing, and return the athlete to his or her sport.

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Instituting a rehabilitation program for an athlete recovering from an injury is imperative, but unfortunately, specific protocols are difficult to find in the published literature. There is a significant lack of clinical evidence and studies analyzing proper protocols for the return of an athlete safely to his or her sport within a timely manner. This can cause frustration for the patient, the athletic trainers, coaches, and physician. The heterogeneity of sports injuries, the number of sports, and the number of lower extremity sports-related injuries make it difficult to carry out meaningful clinical trials. There are several suggested protocols, but few are validated, which can make it difficult for a sports physician to ensure safe return to sport for his/her patient.

In order to have a better understanding of the steps to take, it is important to, first and foremost, understand the basic science behind healing tissues. The phases of rehabilitation closely match the phases of healing, which determine the athlete's stage of healing and whether or not he or she is ready to advance to the next phase. It is also important to realize that each individual has his or her own healing rate. The healing rate is determined by several factors, including the athlete's degree of injury, prior level of conditioning, age, type of sport, time between the initial symptoms and time of treatment, but also motivation level, access to specific treatment facility, and social system, such as coaches and athletic trainers. The treating physician needs to be flexible and must do close follow-up with the injured athlete to ascertain if efficient progress is being made in the right direction.

This article presents an overview of the current existing data about protocols aimed to help the physician in the proper return of their patients safely and in a timely manner to their sports after an injury and/or surgery has occurred.

GOALS OF REHABILITATION

Rehabilitation after a sport injury is the process needed for a timely, safe return to sport participation, whether the patient is a recreational or professional athlete. Restoration of the preinjury function serves as the primary goal, or baseline objective, but it is to be understood that some patients may never achieve preinjury level of sports participation. Therefore, every rehabilitation protocol or program should be individualized to the specific patient's need.² Even though the protocol should be individualized, it should also follow general principles outlined. They all share basic goals, which are as follow³

1. Decrease pain
2. Reduction or elimination of edema
3. Restoration of unrestricted range of motion
4. Regain strength necessary for the specific sport
5. Improve gait pattern and close kinetic chain motion
6. Minimize risk of reinjury
7. Sports-specific agility drills
8. Maintain cardiovascular fitness

Rehabilitation becomes a process of applying stress to healing tissues until the body can sustain a stress similar to the demand of the sport. Therefore, a thorough understanding of the biology and the physiology of the healing tissues is imperative in order to comprehend and safely implement the phases of rehabilitation. One cannot advance to a higher, more aggressive level if the stressed tissue is not mature or healed enough. The phases of rehabilitation are closely related to the phases of tissue healing:

1. Acute phase/inflammatory stage
2. Reparative phase/intermediate stage
3. Return to sport/remodeling stage

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