

## ORIGINAL ARTICLE

# Acute Lateral Ankle Sprains: healing process and acceleration of rehabilitation

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## ABSTRACT

### Purpose

The aim of our study is to correlate the decreased total rehabilitation time of an ankle sprain with therapeutic applications according to the healing process phases.

### Methods

During the period 1999-2005, 132 elite track and field athletes were treated for an acute lateral ankle sprain. All cases were classified in four (4) grades (I, II, IIIA and IIIB), according to our classification criteria. The athletes, who followed the prescribed rehabilitation protocol in full detail comprised group A (nA=101), whereas group B (nB=31) consisted of the noncompliant athletes. The rehabilitation programme, common for both groups, included the PRICE protocol and isometric exercises during the initial, inflammatory phase, active range of motion, stretching and strengthening exercises during the next, fibroblastic phase, while during the last, remodeling phase, eccentric and sports specific exercises were carried out. We recorded the time needed for executing the advanced hop test without discomfort (total rehabilitation time).

### Results

In group A, 42 cases were graded as I and needed 7.24 days (SD=1.63) for recovery, 38 of grade II needed 14.95 days (SD=2.1), 16 of grade IIIA 30.65 days (SD=3.07) and 5 of grade IIIB needed 55.41 days (SD=4.92). In group B, the respective time until complete resumption of sports activities was 12.9 days (SD=3.17) for 17 athletes in grade I, 22.55 days (SD=5.71) for 9 of grade II, 36.5 days (SD=3.77) for 4 of grade IIIA and 64 days for an athlete of grade IIIB. The comparison between groups revealed statistically significant difference, except grade IIIB.

### Conclusions

Application of a rehabilitation programme in accordance with the healing process phases can lead to safer and faster rehabilitation.

**Keywords:** Ankle sprains, soft tissue ankle injury, ankle

*sprain classification, flexibility, rehabilitation*

## INTRODUCTION

Ankle sprains are of the commonest sports-related injuries, constituting 85% of ankle injuries and 25% of all musculoskeletal injuries.<sup>1,2</sup> In most of the cases diagnosis does not exert many difficulties and treatment is usually self-managed. Inappropriate rehabilitation and early return to previous level of sports activities, without fulfilling the prescribed rehabilitation protocol, may lead to the onset of residual symptoms, chronic joint instability or increased recurrency incidence.<sup>3</sup> Up to 30% of the athletes who sustained an ankle sprain, experience residual pain and two in ten a reinjury, with the outcome depending to some extent on management and rehabilitation.<sup>3,4,5</sup> Treating ankle sprains in elite athletes is a challenge for both the physician and the patient. The pressing question when managing such an injury is how to shorten the time required for full and safe return to sports. This paper attempts to elucidate the reduction in total rehabilitation time of an ankle sprain, induced by the proper application of therapeutic intervention, according to the healing process phases.

## MATERIALS AND METHODS

All procedures presented in this study were approved by the Ethics Committee of the Greek Track and Field Federation and all participated athletes gave their written informed consent to be included in the study.

During the period January 1999 - December 2005, 158 elite Greek Track and Field athletes presented to our sports medicine clinic reporting an ankle injury, among which 132 were acute lateral ankle sprains. All of them were examined within the first six post-traumatic hours and did not have any history of previous ankle injuries or ankle and foot pathology. Syndesmotic injury and fractures had to be ruled out for an athlete to be included in the study. If in position, the athlete described the pattern of injury, which was an indication of the subsequent lesion, as it is very well known that the joint position at the time of injury is strictly correlated with the resultant bone or soft tissue damage.<sup>6</sup> But as a rule, the accident transpires so rapidly that it is not possible to recall in details the abnormal position taken by the ankle joint. Thorough clinical examination was always performed by the same

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