

Original Article

Non-surgical treatment of ankle sprains: a survey of orthopedic surgeons in Minas Gerais

Tiago Soares Baumfeld¹ , Taíne Gomes Lopes¹ , Gustavo Henrique Dornela de Souza² , Eduardo Frois Temponi³ , Lucas do Amaral Santos⁴ , Gustavo Araújo Nunes⁵ , Cecília Ferreira de Aquino⁶ , Túlio Vinícius de Oliveira Campos⁶ 

1. Hospital Felício Rocho, Belo Horizonte, MG, Brazil.
2. Faculdade Ciências Médicas São Paulo, SP, Brazil.
3. Hospital Madre Tereza Belo Horizonte, MG, Brazil.
4. Instituto Orizonti Belo Horizonte, MG, Brazil.
5. Cote Clínica de Ortopedia Especializada Brasília, Brasília, DF, Brazil.
6. Universidade Federal Belo Horizonte, MG, Brazil.

Abstract

Objective: Evaluate the diagnostic and therapeutic approach to ankle sprains by orthopedic surgeons in Minas Gerais, Brazil.

Methods: This study was conducted by the Scientific Committee of the Brazilian Society of Orthopedics and Traumatology (SBOT/MG) in 2023. A questionnaire was created on the Google Forms platform with questions regarding the non-surgical approach to ankle sprains. The questionnaire was distributed by email and WhatsApp to SBOT/MG members.

Results: One hundred sixteen orthopedists answered the questionnaire, and 27.6% were foot and ankle specialists. Most of them work in Belo Horizonte city and perform between ten and 30 consultations related to ankle sprains per month. Most professionals request radiographs and prescribe anti-inflammatories. The greatest divergence occurred regarding the use of immobilization. Referral for physiotherapy varied according to the degree of injury.

Conclusion: Strategies for addressing acute ankle sprains are heterogeneous among orthopedists in Minas Gerais, Brazil. The classic treatment protocol is most frequently used in relation to functional treatment.

Level of Evidence IV; Therapeutic Studies; Case Series.

Keywords: Sprains and strains; Ankle injuries; Lateral ligament, ankle.

Introduction

A lateral ankle sprain is the most common acute trauma in sports and accounts for approximately 40% of all sports traumatic ankle injuries⁽¹⁾. The lateral ligament complex of the ankle is compromised in 80%-85% of these injuries, with the anterior talofibular ligament being the most frequently injured^(2,3). Ankle ligament injuries occur mostly due to inversion trauma and are classified into three degrees, according to their severity⁽⁴⁾. Following the O'Donoghue classification, these injuries occur by stretching (grade I sprain), partial ruptures (grade II sprain), or total rupture (grade III sprain)⁽⁵⁾.

The diagnosis can be confirmed by physical examination with specific maneuvers such as the anterior drawer test or

with imaging tests. The Ottawa rules were created to guide the request for radiographic examinations in emergency care in case of specific clinical criteria such as referred malleolar pain associated with age > 55 years, inability to bear weight, and bone tenderness in the distal malleolus (6 cm). The initial evaluation is not accurate enough to diagnose the degree of the injury, and the late physical examination, after 4-5 days of trauma, is considered the most reliable for this evaluation⁽⁶⁾.

Magnetic resonance imaging (MRI) is widely used to diagnose ligament injuries and provides information on associated injuries, presenting high sensitivity and specificity⁽⁷⁾.

Regardless of the injury magnitude, acute ankle sprains are treated non-surgically, using non-steroidal anti-inflammatory drugs (NSAIDs), orthoses, and physical rehabilitation, with

Study performed at the Hospital Felício Rocho, Belo Horizonte, MG, Brazil.

Correspondence: Tiago Baumfeld. Av. do Contorno, 9530, Barro Preto, Belo Horizonte, MG, Brazil. **Email:** tiago.baumfeld@gmail.com **Conflicts of interest:** none. **Source of funding:** none. **Date received:** January 14, 2024. **Date accepted:** February 6, 2024. **Online:** April 30, 2024.

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symptoms improving in around 80% of cases⁽⁸⁾. Despite the increasing number of published studies on the subject^(9,10,11), heterogeneity in treatment persists. In the past, conventional treatment delayed the start of weight-bearing, had long immobilization, and started physiotherapy late. Currently, functional rehabilitation recommends early weight-bearing, short immobilization, and early physiotherapy, favoring the maintenance of joint movement with external support for extreme movements, enabling pain improvement and faster return to normal functional activities^(9,10,11).

The objective of this study is to evaluate the diagnostic and therapeutic approach to ankle sprains by orthopedic surgeons in Minas Gerais, Brazil.

Methods

This study was conducted by the Scientific Support Committee of the Brazilian Society of Orthopedics and Traumatology in Minas Gerais (SBOT/MG) from June to November 2023. A questionnaire was created on the Google Forms platform with questions regarding the non-surgical approach to ankle sprains. This questionnaire was distributed by email and WhatsApp to the full members of SBOT/MG.

Participants signed the informed consent form (ICF) before answering the questionnaire. The system guaranteed the anonymity of the participants. The response was voluntary and did not benefit or harm the participants. This study was approved by the institutional review board.

The data obtained were analyzed using the Google Forms platform, using frequency and percentage values, and later analyzed in an Excel spreadsheet.

Results

The questionnaire was sent to 1405 physicians of SBOT/MG, and 116 responses were obtained, of which 27.6% were from foot and ankle specialists.

Among the participants, 64.9% work primarily in Belo Horizonte city. Figure 1 shows the number of ankle sprains that participants see monthly, and the majority (58.6%) perform between ten and 30 consultations.

Most orthopedists request ankle radiographs for all patients (68.1%), while 25.9% use the Ottawa criteria. To evaluate grade 3 sprain, MRI was requested at the first visit 56% of the time and in suspected hidden fracture 45.7% of the time. Only 2.6% of participants requested an MRI for all patients. Regarding treatment, 93.1% prescribed NSAIDs, and the majority (67.6%) maintained the use for five days.

In grade 1 sprains, most orthopedists do not perform immobilization (30.2%) or bandage the joint (33.6%), totaling 63.8%. When prescribed, immobilization was maintained for a maximum of two weeks (59.5%). Figure 2 shows the weight-bearing release after the grade 1 sprain. Most authorized full weight-bearing without support (55.2%).

In grade 3 sprains, most orthopedists perform immobilization with orthopedic boots (74.1%). When immobilization was

performed, it was maintained for a maximum of four weeks (81.9%). Figure 3 summarizes the weight-bearing release after the grade 3 sprain. Most authorized weight-bearing with support as they tolerate (56.9%).

As for physiotherapy, 31.9% of orthopedists prescribed for grade 1 sprain, while for grade 3 this frequency rises to 88.8%. Figure 4 represents the moment when the patient was referred to physiotherapy. It is observed that this is a heterogeneous conduct. The reasons for not referring some patients to physiotherapy were mainly related to the availability of the service and the lack of experience of the physiotherapist professional in orthopedic cases.

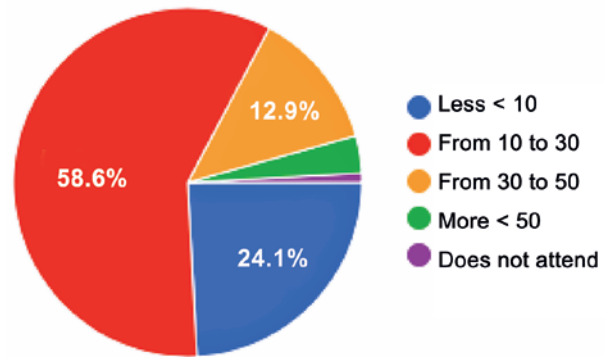


Figure 1. Number of sprains attended monthly.

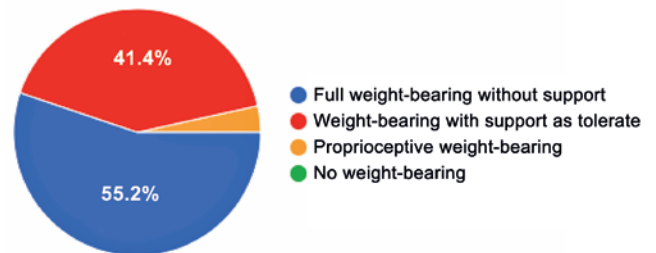


Figure 2. Weight-bearing allowance after grade 1 sprain.

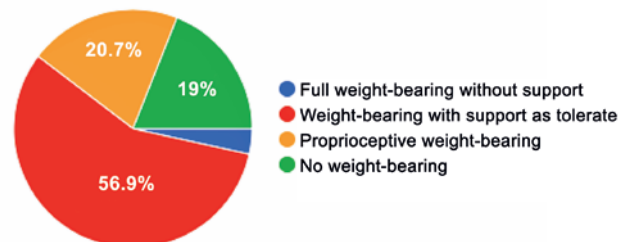


Figure 3. Weight-bearing allowance after grade 3 sprain.

Discussion

The data obtained from this study point to a scenario in which the initial evaluation of this injury by orthopedists from Minas Gerais is uniform for some questions, but there is variation regarding the other items. An important limitation to be considered in the analysis of these data is that less than 10% of the experts who received the questionnaire completed it.

Most participants (68.1%) request radiographs for all patients. Radiographs are used to rule out fractures, although the prevalence is less than 15% in patients who suffer this type of injury⁽¹²⁾. The use of the Ottawa rules is strongly recommended in emergency rooms due to its accurate tool to exclude fractures⁽¹²⁾. Interestingly, only 1/4 of participants use this criterion. The performance of radiographs in selected cases would represent a substantial reduction in costs related to this injury and would reduce the waiting time in emergency services. The challenge is to create legal security for these patients to be discharged without performing radiographs and to create an outpatient clinic for patients to be reassessed in case of the persistence of symptoms.

Regarding the use of medications, most orthopedists (93.1%) prescribe NSAIDs for at least five days. The main objective of these drugs is to reduce pain and local edema, and there is no evidence of the benefit of their use after this period⁽⁹⁾.

Regarding immobilization, rigid immobilization is the most current recommendation that does not exceed a period of ten days, and functional treatment should start soon after^(9,10). This study showed variations in the prescription and period of immobilization. Patients with mild sprains are immobilized using bandaging by most orthopedists while patients with severe sprains are immobilized with robofoot-type boots, with wear time ranging from one to four weeks, according to the degree of injury.

Prolonged immobilization has a detrimental effect on muscles, ligaments, and joint surfaces⁽⁶⁾. Several studies have failed to demonstrate a beneficial effect of prolonged

immobilization (greater than four weeks). Ideally, immobilization should be restricted to specific conditions (more severe sprains, intolerance to weight-bearing, kinesiophobia) and for short periods⁽¹⁵⁾.

Functional treatment is most appropriate in cases of ankle sprains as it optimizes the patient's response. It is an early mobilization program associated with flexible external support, such as therapeutic bandages⁽¹⁴⁾. It is known that flexible functional support, with restriction of extreme movements associated with therapeutic exercises, provides better results compared to rigid immobilization⁽¹⁾. It is worth remembering that the success of functional treatment depends on the degree of injury⁽¹⁵⁾. However, what can be observed in the study is that this conduct is very heterogeneous among orthopedists.

The referral for physiotherapy and the moment of onset varied according to the degree of injury. Patients with mild sprain degrees are rarely referred for physiotherapy, while more severe patients are referred to physiotherapy and intervention more frequently. Ideally, early referral to a physiotherapy professional is beneficial to patients, helping to reduce pain, edema, kinesiophobia, and implementing functional treatment^(15,16).

For a long time, patients were advised to follow the famous protocol called PRICE, which consists of protection, rest, cryotherapy (ice), compression, and elevation. In view of this change of treatment, the currently recommended protocol is PEACE and LOVE, which is divided into two stages. In the first 72 hours: protection, elevation, avoidance of anti-inflammatories, compression, and education. After 72 hours, the load should progress, be optimistic, accelerate vascularization, and perform exercises⁽¹⁷⁾.

Most orthopedists in Minas Gerais perform conventional approaches to ankle sprains. The patient is immobilized, however the weight-bearing on the lower limb is released. It is noted that joint mobility, related to functional treatment, is often left in the background, despite its proven superiority^(14,17). The variation in the approach to ankle sprain by orthopedists was confirmed by the findings of this study and reinforces the need to offer evidence-based training to update professionals regarding the approach to this injury^(14,16).

Conservative treatment performed incorrectly can hinder patient rehabilitation and generate chronic instability, even requiring surgical procedures later. Due to these factors, standardization is necessary, and disseminating it to non-specialists in foot and ankle can facilitate this change to an appropriate functional treatment.

Conclusion

Strategies for addressing acute ankle sprains are heterogeneous among orthopedists in Minas Gerais, Brazil. The classic treatment protocol is most frequently used in relation to functional treatment.

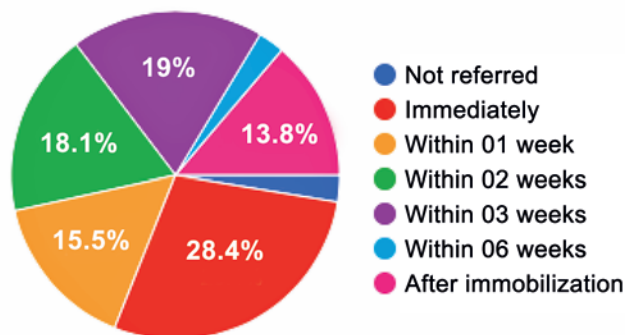



Figure 4. Patient's referral to physiotherapy after ankle sprain.

Authors' contributions: Each author contributed individually and significantly to the development of this article: TSB*(<https://orcid.org/00000001-9244-5194>) Conceived and planned the activity that led to the study, wrote the article, participated in the review process; TGL *(<https://orcid.org/0000-0001-5111-8090>) data collection, bibliographic review; GHDS *(<https://orcid.org/0000-0001-9031-262X>) formatting of the article, bibliographic review; EFT *(<https://orcid.org/0000-0002-3002-9870>) Interpreted the results of the study, participated in the review process; LAS *(<https://orcid.org/0009-0009-5857-8968>) Performed the surgeries; data collection, statistical analysis. GAN *(<https://orcid.org/0000-0003-4431-5576>) CFA *(<https://orcid.org/0000-0001-8393-771X>) TVOC *(<https://orcid.org/0000-0002-2522-7047>) All authors read and approved the final manuscript.*ORCID (Open Researcher and Contributor ID) 

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