



Management Of Acute Ankle Sprain: A Systematic Review

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ABSTRACT

Objective: This paper aims to provide a literature review evaluating treatment strategies for acute ankle sprain.

Methods: This article The method of search articles through electronic-based databases, Science Direct, Pubmed, and Web of Sciences. Articles collected have been for publication between 2014 - 2024 and selected based on quantitative research, and topic treatment of ankle sprain compatibility with keywords. The eligibility of the studies was assessed using the Joanna Briggs Institute (JBI) guidelines, and the PRISMA diagram was employed to organize the search results.

Results: A total of ten studies met the inclusion criteria, all of which had experimental designs. Various types of interventions were identified from the collected literature. A multidisciplinary approach that integrates manual techniques, physical therapy, medical care, and preventive education provides optimal results in the management of ankle injuries. Proper management treatment and rehabilitation to heal correctly and minimize the risk of re-injury.

Conclusion: Future research should define comprehensive treatment acute ankle sprain to enhance short and long term care and clinical outcomes in nursing context.

INTRODUCTION

Ankle sprains are one of the most common musculoskeletal injuries. It is a condition where there is excessive stretching or tearing of the ankle ligaments. Ligament injuries can occur due to sudden sprains during physical activity foot (Bilgic *et al.*, 2015). The most common mechanism for such injuries is supination, combination of adduction and inversion of the plantar-flexed foot (Bilgic *et al.*, 2015). An ankle sprain injury causes pain due to inflammation that increases due to weakness ligaments and muscle imbalance (Azzahra & Supartono, 2021).

This often happens when exercising, walking on uneven surfaces, or even during daily activities (Chinn and Hertel, 2010). This injury can cause pain, swelling, stiffness, and instability in the ankle. Management of ankle sprains can be divided into several stages, namely initial evaluation, initial treatment, rehabilitation medical treatment, prevention, and recovery (Wells *et al.*, 2019) may result in a more stable yet mobile ankle offering improved outcomes. The purpose of this case series was to describe the methods and observe the outcomes associated with a comprehensive strategy for managing acute first episode grade II lateral ankle sprains. Study design: Prospective case series. Case Descriptions and Interventions: Ten patients (mean age 26.7 years, range 16-51 years, mean 2.3 days from injury. What if the initial handling is not done properly it will cause the injury to take longer to recover (Imardiani *et al.*, 2023).

Ankle injuries, particularly ankle sprains, are the most common sports related injuries, and are currently the reason for 3–5 % of all ER visits in the UK, and 10 % of them in the USA (Naeem *et al.*, 2015) no treatment is considered to be the gold standard for the management of such sprains. We assessed functional treatment versus plaster of Paris (POP. Based on the data, ankle sprains occur a lot in sports, basketball is in the first place which is prone to injury, while football, volleyball, and running are also athletic activities that often experience ankle sprain injuries (Gaddi *et al.*, 2022). Symptoms that appear after the occurrence of an ankle sprain at 30 - 40% of patients reported that they had chronic pain, muscle weakness, joint inflammation, nerve damage, and joint instability (Sudaryanto *et al.*, 2022). Recurrence rates are high and many patients experience long-term residual symptoms that limit lifestyle and affect athletic performance (Bleakley *et al.*, 2008).

The variation in treatment observed for the acutely injured lateral ankle ligament complex in the first

week after the injury suggests a lack of evidence-based management strategies for this problem. The current standard of treatment for acute ankle sprains continues to be defined by the acronym PRICE (protection, rest, ice, compression, elevation) (Iammarino *et al.*, 2018). The three main interventions commonly described after ankle sprain are: surgery, immobilization, or functional treatment (Bleakley, McDonough and Macauley, 2008; Kerkhoffs *et al.*, 2012; Petersen *et al.*, 2013)

The study of ankle sprains encompasses a comprehensive understanding of the condition, including its causes, symptoms, treatment, rehabilitation, and preventive measures, to effectively address the impact of this common musculoskeletal injury. Ankle sprain management is critical in planning effective treatment and minimizing the risk of re-injury. This study aimed to provide a systematic review evaluating treatment strategies for acute ankle sprain.

METHOD

This study conducted a comprehensive literature search using the Science Direct, Pubmed, and Web of Sciences to identify peer reviewed articles about the treatment of lateral ankle sprains according to the PRISMA statement. For the systematic review, different combinations of keywords were utilized: (1) ankle sprain, (2) ankle sprain and nursing intervention (3) ankle sprain and RICE, (4) exercise therapy, (5) ankle sprain assesment (6) ankle injury and visual analog scale, (6) mobilization. Articles are screened to become articles according to the review objectives with inclusion criteria, namely: 1) articles published in full text and in English, 2) articles published within a time period 2014 to 2024. Research and Quality: randomized controlled trial (RCT) and Non RCT. Articles were screened to become 69 articles according to the review objectives and inclusion criteria. After screening, 10 articles that met the criteria were read intensively and then analyzed based on content analysis.

This paper reports the findings of a systematic review of the literature evaluating treatment strategies ankle acute sprain of the in a PICO format.

Table 1. PICOS criteria

Criteria	Inclusion	Exclusion
Population	Studies comprised of ankle sprain	Studies comprised of another sports injury
Intervention	All types of interventions for ankle sprain	Intervention another sprains
Comparison	No comparator	No comparator
Outcome	All reviews evaluating treatment strategies	Discussing only about sport injury
Study design & publication type	RCT, Non RCT	Article reviews, cross sectional
Publication year	After 2014	Before 2014
Language	English	Languages other than English

PICOS (Problem or population, I intervention, C: Control or comparison, O: outcome, S: study design; RCT: Randomized Controlled Trial

The source, search strategy with key words, and hits retrieved is described in Table 2 and the reasons for exclusion are detailed In Fig.1

Table 2. Search strategy

Source	Search strategy	Hits retrieved
Science Direct	Ankle sprain OR ankle injury nursing intervention AND RICE AND exercise therapy outcome ankle sprain assessment OR visual analog scale AND RCT OR randomized controlled trial AND experimental study	58,913 results
PubMed	Ankle sprain OR ankle injury nursing intervention AND RICE AND exercise therapy outcome ankle sprain assessment OR visual analog scale AND RCT OR randomized controlled trial AND experimental study	7,758 results
Web of Sciences	Ankle sprain OR ankle injury nursing intervention AND RICE AND exercise therapy outcome ankle sprain assessment OR visual analog scale AND RCT OR randomized controlled trial AND experimental study	204 results

RCT: Randomized Controlled Trial

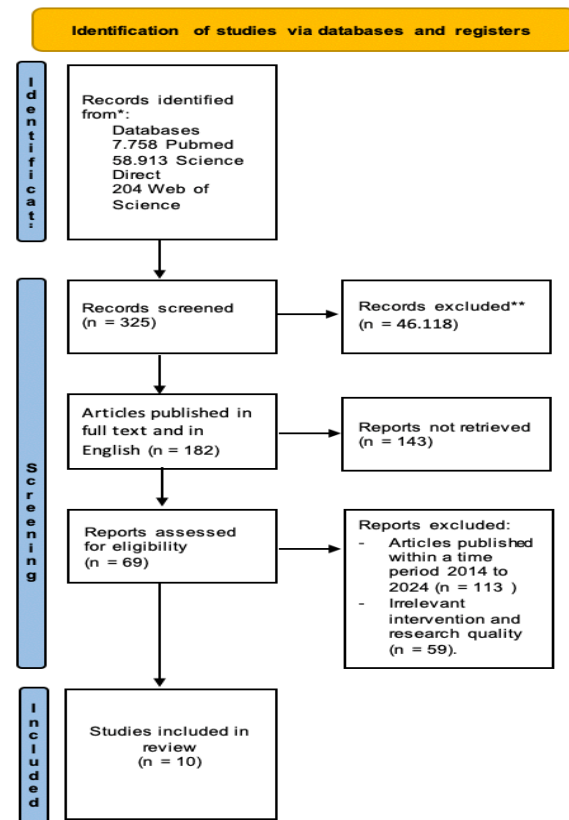


Figure 1. Flow Diagram Used in Selecting Studies by Using PRISMA (Preferred Reporting

Items for Systematic Review)

RESULTS

Based on literature searches, it is known that research was conducted in several countries such as the USA, Canada, South Korea, China, Switzerland, Turkey, Pakistan. The research method used was a randomized controlled trial (RCT) with 7 articles, a randomized controlled trial (RCT), and Non-RCT 3 articles. This research article was published between 2014 and 2024.

Based on the articles reviewed above, more than half of the articles had a randomized controlled trial (RCT) study design (n=10), while the remaining studies were non-randomized controlled trial (n=3). The studies included in this systematic review were from studies in various countries across the world. Based on the review results, the various types of interventions were identified from the collected literature such as manual techniques, physical therapy, medical care, and preventive education provides optimal results in the management of ankle injuries and all studies cover all setting care for acute until rehabilitation.

Table 3. Checklist for Randomized Control Trial (RCT) and Non-Randomized Control Trial from The Joanna Briggs Institute

Studies Included: Randomized Control Trial (RCT) 13 Questions																
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Total score	Category	
Allois et al (2021)a mind-body practice, and compare it with the rubber-band exercise on ankle proprioception and balance among individuals with CAI. Study design: A randomized controlled trial. Methods: Thirty-two participants with CAI aged 20.3 ± 1.8 years were randomized into three groups; 1	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	11/13	84.6% (Good)	
Nunes et al (2015)	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	10/13	76.9% (Good)	
Iammarino et al (2018)	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	10/13	76.9% (Good)	
Brison et al (2016)	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	9/13	69,2% (Fair)	
Punt et al (2016)	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	10/13	76.9% (Good)	
Kim et al (2017)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	12/13	92,3% (Good)	
Naeem et al (2015)	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	12/13	92,3% (Good)	
Studies Included: Non-Randomized Control Trial 9 Questions																
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Total score			Category			
Enfermeria et al (2022)	Y	Y	Y	N	Y	N	Y	Y	N	6/9			66.6% (Fair)			
Bilgic et al (2015)	Y	Y	Y	N	Y	Y	Y	Y	Y	8/9			88.8% (Good)			
Kim, Lee, and Han (2014)	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9			100% (Good)			
Note: Y: Present; NA: Not Applicable; N: Not Present; RCT: Randomized Control Trial; Non RCT: Non-Randomized Control Trial.																

Table 4. Description of study characteristics

Indicator	Category	(n=10)	Percentage (%)
Study design	Randomized Controlled Trial (RCT)	7	70
	Non-Randomized Controlled Trial (RCT)	3	30
Country	Spain	1	10
	Australia	1	10
	USA	1	10
	Canada	1	10
	Switzerland	1	10
	South Korea	2	20
	Pakistan	1	10
	China	1	10
	Turkey	1	10
Intervention type	Myofascial techniques, isoinertial device and neuromuscular taping	1	10
	Kinesio Taping application 'fan cut', Ankle balance taping	3	30
	Early Elastic Band Mobilization	1	10
	Physiotherapy	1	10
	Wii Fit™ exercise therapy and conventional physical therapy	1	10
	RICE and Functional treatment Tubigrip (TG), Plaster of Paris (POP)	1	10
	Prevention of sports ankle injuries carry out adequate preparation activities before exercise; Strengthen self-protection awareness; Instruct to exercise skills; Nursing care of sports ankle joint injury treatment of ankle fractures; Nursing of ankle sprain, Local ice compress, Topical medication oral anti-inflammatory analgesics, Spray Yunnan Baiyao aerosol locally, Externally to use Voltaren latex, Use trauma fumigants to fumigate those with severe injuries, First puncture and aspirate the blood. Then inject a mixture of lidocaine and Queyanshusong or other glucocorticoids to reduce adhesion, Late stage, combined with acupuncture, massage, and massage therapy to promote the recovery of joint function.	1	10
	Splint and Elastic bandage	1	10

Table 5. Results of the best evidence synthesis from the reviews

Author Year Country	Title	Objective	Sample (n)	Methods	Result	Outcome
Allois et al., (2021) Spain	Fascial therapy, strength exercises and taping in soccer players with recurrent ankle sprains: A randomized controlled trial	The objective was to evaluate the effectiveness of a fascial therapy and strength training program, combined with kinesiotaping, in improving ankle range of motion, pain, strength and stability in footballers with recurrent sprains.	36 participants	RCT Experimental group : myofascial techniques applied to the subastragline joint, eccentric training with an isoinertial device and neuromuscular taping. Control group was administered an intervention using myofascial techniques on the subastragline joint and eccentric training with an isoinertial device. The results were recorded for all players at baseline, after 4 weeks of intervention, and at the end of the 4- week follow-up period.	Myofascial techniques combined with strength training using an isoinertial device can improve ankle range of motion and strength, and stability in footballers with recurrent ankle sprains. Myofascial therapy and strength training coupled with kinesio taping can improve perceived pain, mobility and strength in ankle plantar flexion and dorsiflexion, and stability of the lower limbs. The improvement of ankle functionality in terms of mobility, strength and stability is similar in both study groups, regardless of the use of stabilizing taping.	Outcome measures at the baseline (T0), after the three-week period of experimental and control interventions (T1) and after further 4-weeks as follow-up (T2)
Nunes et al., (2015) Australia	Kinesio Taping does not decrease swelling in acute, lateral ankle sprain of athletes: a randomized trial	Does Kinesio Taping reduce swelling in athletes who have suffered an acute, lateral ankle sprain?	36 participants	RCT Intervention: The experimental group received Kinesio Taping application for 3 days, which was designed to treat swelling. The control group received an inert Kinesio Taping application.	The application of Kinesio Taping, with the aim of stimulating the lymphatic system, is ineffective in decreasing acute swelling after an ankle sprain in athletes.	The swelling was measured via volumetry, perimetry, relative volumetry and two analyses of the difference in volume and perimetry between ankles of each participant. Data were collected immediately after the 3 days of intervention and at follow-up, which was 15 days post intervention.

Iammarino et al (2018) USA	Efficacy of the Stretch Band Ankle Traction Technique in the Treatment of Pediatric Patients with Acute Ankle Sprains: A Randomized Control Trial.	There were two objectives of this study: (1) to determine if early ankle joint mobilization using elastic band traction is effective and (2) assess the occurrence of adverse events with this technique in the pediatric population.	Randomized (n=41)	RCT Intervention : Elastic band traction mobilization Standar physical therapy care PRICE	Early mobilization appears to be a safe intervention in pediatric patients with an acute ankle sprain. Early mobilization resulted in similar outcomes when compared to traditional PRICE treatment. A high drop-out rate in both treatment groups was a limitation of this randomized trial.	Pain (NPRS) Ankle range of Motion Ankle muscle strength Self-reported outcome measures (FADI [26-item questionnaire] and FADI sport module [additional 8 items]) for foot and ankle disability Time to return to sport
Brison et al., (2016) Canada	Effect of early supervised physiotherapy on recovery from acute ankle sprain: randomised controlled trial	To assess the efficacy of a programme of supervised physiotherapy on the recovery of simple grade 1 and 2 ankle sprains.	504 respondents Female 280 Group1: 146 Group 2: 134 Male 224 Group 1: 108 Group 2: 116	RCT Physiotherapy, group 1 (n = 254) Usual care, group 2 (n = 250) Simple Grade I or II ankle sprain.	The absolute proportion of patients achieving excellent recovery at three months was not significantly different between the physiotherapy (98/229, 43%) and usual care (79/214, 37%) arms (absolute difference 6%, 95% confidence interval -3% to 15%). The observed trend towards benefit with physiotherapy did not increase in the per protocol analysis and was in the opposite direction by six months. These trends remained similar and were never statistically or clinically important when the FAOS was analysed as a continuous change score.	Foot and Ankle Outcome Score

Punt et al. (2016) Switzerland	Wii Fit™ exercise therapy for the rehabilitation of ankle sprains: Its effect compared with physical therapy or no functional exercises at all	The aim of this study was to compare the effectiveness of exercise training using the Wii Fit™ in ankle sprain patients: (a) with physical therapy; and (b) a control group not receiving any treatment.	90 underwent randomized 30 were assigned for Wii Fit™ therapy 30 were assigned for conventional physical therapy 30 were assigned for no therapy (control)	RCT Wii Fit™ exercise therapy Conventional physical therapy Control: No exercise therapy. Patients received standard instructions at the emergency department.	Six weeks after the baseline measures, foot and ankle ability scores had improved in all groups, and pain had decreased during walking ($P < 0.050$). No between-group differences were detected between Wii Fit™ treatment, and both other groups ($P > 0.050$). In conclusion, the Wii Fit™ could be used as an exercise therapy to treat ankle sprain patients. However, Wii Fit™ was not more effective than only physical therapy, or no exercise therapy at all. Patients who did not receive treatment showed similar results as people who got any kind of exercise therapy	Self-reported physical function (FAAM) Pain (VAS) at rest and while walking Delay to return to sport Patient satisfaction with treatment Subjective perception of the effectiveness of the allocated treatment
Kim et al., (2017) South Korea	Immediate Effects of Ankle Balance Taping with Kinesiology Tape for Amateur Soccer Players with Lateral Ankle Sprain: A Randomized Cross-Over Design	The objective of this study was to investigate the immediate effect on gait function when ankle balance taping is applied to amateur soccer players with lateral ankle sprain	22 respondents	Cross-over randomised Design A cross-over randomized design was used. Twenty-two soccer players with an ankle sprain underwent 3 interventions in a random order. Subjects were randomly assigned to ankle balance taping, placebo taping, and no taping groups. The assessment was performed using the GAITRite portable walkway system, which records the location and timing of each footfall during ambulation. Ankle balance taping group 1 Placebo taping group 2 No taping group 3 Grades I and II lateral ankle sprain	Significant differences were found in the velocity, step length, stride length, and H-H base support among the 3 different taping methods ($p < 0.05$).	VAS for pain

Naeem al.(2015) Pakistan	et	Assessment of functional treatment versus plaster of Paris in the treatment of grade 1 and 2 lateral ankle sprains	To assessed functional treatment versus POP for the treatment of lateral ankle sprains of grade 1 or 2, employing functionality and pain reduction as the outcomes of the study	120 patients 60 were assigned to the functional treatment group. The other 60 to the POP group	RCT Functional treatment Tubigrip (TG) group Plaster of Paris (POP) group Level of evidence Level I.	60 Patients completed the trial in each group. The mean ages were 28.77 ± 6.72 in the TG group and 29.83 ± 6.30 in the POP group ($p = 0.034$). There was a slight female predominance. Right and left ankles were equally involved in the TG group, while left ankles were mainly involved in the POP group. Mean differences in VAS and KS between the two groups were statistically significant at the end of the study. The mean number of painkillers used by the patients in the TG group was higher than the number used in the POP group ($p \leq 0.001$). The mean number of days taken off work was 4.18 ± 1.73 days in the TG group, and 6.25 ± 2.73 days in the POP group ($p \leq 0.001$). The mean number of sleepless nights was higher in the POP group. The results of our study indicate that functional treatment provides better functional support and pain reduction than a below-knee POP cast.	VAS Karlsson score
Enfermeria al (2022) China	et	Nursing in Sports Ankle Injury Based on the Fitness Exercise	To analyze the sports injuries of the ankle cases, determining the principal reasons for injury and outlining preventive measures.	120 college students came to our infirmary for sports ankle injuries, including 70 males and 50 females.	Evidence level II; Therapeutic Studies - Investigating the results.	Joint injuries and ankle sprains followed by hematomas represented the most significant proportion of ankle injuries. The reasons are lack of physical fitness, lack of awareness of self-protection, inadequate preparation in the sporting environment facilities, and performing tasks outside what the superior specified was specified	Incidence of sports injuries and reduces the occurrence of complications

Bilgic et al (2015) Turkey	Comparison of two main treatment modalities for acute ankle sprain	To compare two treatment modalities: splint and elastic bandage for the management of acute ankle sprains.	51 patients 25 patients in the elastic bandage group 26 patients in the splint group.	This prospective study was conducted in the emergency department. Fifty-one consecutive patients who were admitted to the emergency department owing to the complaint of ankle sprain and who were treated with an elastic bandage or a splint were included in the study. After bone injury was ruled out, treatment choice was left to the on-shift physicians' discretion. The extent of edema was evaluated before and after the treatment by using a small, graduated container filled with warm water. Volume differences were calculated by immersing both lower extremities in a container filled to a constant level. Pain was evaluated using the visual analogue scale.	There were 25 patients in the elastic bandage group and 26 patients in the splint group. VAS scores of these groups before and after the treatment were similar. Although edema size before and after the treatment were similar between the groups, edema size reduction was significantly more in the elastic bandage group [$p=0,025$].	VAS score Edema size
Kim, Lee, and Han (2014) Korea	The Immediate Effect of Ankle Balance Taping using Kinesiology Tape on the Weight-bearing Ankle Dorsiflexion Range of Motion and the Dynamic Balance in Asymptomatic Subjects	To examine the immediate changes in the weight-bearing ankle dorsiflexion range of motion (ROM) and the dynamic balance in asymptomatic subjects	23 active participants	Ankle flexibility was assessed using the weight-bearing lunge test, and dynamic balance was assessed using the modified SEBT. Participants were asked to respond to questions regarding their perception of stability, reassurance, and confidence when performing modified SEBT. Ankle balance taping (ABT) and placebo ABT with kinesiology tape	The weight-bearing ankle dorsiflexion ROM did not show a significant decrease after real ABT or placebo ABT compared to the ROM prior to ABT. The anterior, posterolateral, and posteromedial reach distances of SEBT did not increase significantly after real ABT or placebo ABT compared to the distances prior to ABT. However, the participants' perception of stability, reassurance, and confidence, when performing SEBT with real ABT, was increased compared to that during the control trial.	ROM Dynamic balance The modified Star Excursion Balance Test (SEBT)

Finding on this review is myofascial technique, isoinertial & neuromuscular taping (kinesio taping) did not reduce swelling effectively. Despite their common use in musculoskeletal therapy, the evidence from the findings suggests limited impact on edema reduction. Conventional therapy included elastic band traction mobilization combined with standard physical therapy care. Standard care involved PRICE protocol (Protection, Rest, Ice, Compression, Elevation), Physiotherapy sessions, Wii Fit™ exercise therapy, and Conventional physical therapy exercises. Another study standar intervention is exercise therapy, elastic bandage, and splint. Ankle balance taping using kinesiology tape was tested on weight-bearing ankle dorsiflexion range of motion and dynamic balance in asymptomatic subjects. The focus was on acute ankle sprain cases. The results indicated that ankle balance taping with kinesiology tape may influence ankle dorsiflexion and dynamic balance, but the exact efficacy compared to placebo or no taping requires further clarification. Neither Alois myofascial technique nor neuromuscular taping (including kinesio taping) showed significant efficacy in reducing swelling. The combination of elastic band traction mobilization with standard physical therapy protocols remains a cornerstone in managing ankle injuries, though specific swelling outcomes were not highlighted. Ankle balance taping using kinesiology tape may improve functional parameters such as dorsiflexion range and dynamic balance, which are critical in rehabilitation, especially for acute ankle sprain patients.

DISCUSSION

The purpose of this review was to provide a systematic review evaluating treatment strategies for acute ankle sprain. Correct initial assessment of ankle sprain will impact the patient's healing process. Instruments used in evaluation to evaluate pain and functional assessments were done using the visual analog scale (VAS). Based on seven articles using VAS to assess pain for ankle sprain. NPRS is often used with VAS to get a complete picture of the level of pain in ankle sprain patients both at rest and in their daily activities (Ortega-Avila et al., 2020). Another research used VAS and the Karlsson score (KS) at baseline (at the start of the study) and during the 2nd and 6th weeks, respectively. The Karlsson score is not commonly used in this context because it is more specific to the diagnosis of knee injury than a general evaluation of pain (Ortega-Avila et al., 2020). The combination of NPRS and VAS is an effective method to measure pain intensity accurately and flexibly. The evaluation of swelling following an ankle sprain, or the measurement of edema size, was conducted using volumetry,

perimetry, relative volumetry, and two comparative analyses of volume and perimeter differences between the ankles of each participant.

Balance measurement uses 3 types of instruments, namely the stability assessment, dynamic balance, and The modified Star Excursion Balance Test (SEBT). The stability assessment measure individual postural stability, especially in static and dynamic conditions. Can be used to assess fall risk and ability to maintain balance after ankle injury. This is important because ankle injuries can compromise postural stability. Dynamic Balance to measure an individual's ability to maintain balance while moving, which is very important for patients with acute ankle sprain. This injury often affects the patient's ability to move safely. Dynamic balance assessment helps in rehabilitation and prevents re-injury. The Modified Star Excursion Balance Test (SEBT) assesses dynamic postural control by testing a person's ability to reach as far as possible in eight directions while standing on one leg. SEBT is effective in identifying postural control deficits in individuals with ankle injuries, including those with acute ankle sprains. Research shows that individuals with chronic ankle instability perform worse in certain directions than healthy controls (Doherty et al., 2016).

Ankle mobility to evaluate ankle mobilization ability. This instrument determines movement limitations and postural stability after injury. Specifically in assessing motor control and ankle stabilization. Ankle range of motion is assessed by clinical tests such as surveying the contact distance between the heel and a flat surface (e.g., wall test). Ankle range of motion determines the degree of flexibility and mobility of the ankle. It is easy to administer and provides quantitative data about ROM (Kalender et al., 2022).

Foot and Ankle Disability Index a rating scale used to measure the level of lower limb disability. This instrument to determines the level of disability and monitor rehabilitation progress. Specific in assessing disability and flexible in use. These instruments complement each other in assessing patient status holistically. Ankle mobility and ROM are specific in assessing ankle stability and mobilization (Usgu et al., 2023), whereas FAAM and FIADI are more flexible in assessing the impact of injury on the patient's quality of life subjectively and objectively. Another study reported used Self-reported Physical Function (FAAM) a survey instrument used to assess the patient's own physical function. FAAM to find out how injuries affect motor skills and daily activities. This instrument flexible and relevant for assessing the impact of injury on patient quality of life.

Psychosocial assessment is an important process in the fields of mental health and clinical practice, aimed at comprehensively understanding an individual's psychological condition. There are two studies that use psychosocial assessments, namely time to return to sport and delay to return to sport. The primary purpose of this questionnaire is to systematically evaluate the multiple dimensions of recovery—ranging from medical history and physical examination findings to functional performance and symptom resolution—thereby minimizing the risk of re-injury and optimizing long-term outcomes. The questionnaire serves not only as a clinical decision-making aid but also as an educational resource for athletes, helping them understand the importance of each recovery phase and the rationale behind specific tests and criteria. By incorporating detailed assessments of pain, swelling, joint stability, functional capacity, and psychological readiness, this tool supports a gradual, safe progression back to sport-specific demands. It also facilitates communication among multidisciplinary teams, including physicians, physical therapists, athletic trainers, and coaches, ensuring that return-to-play decisions are collaborative and patient-centered. In summary, this return-to-sport questionnaire is a vital instrument that bridges the gap between injury and full athletic participation. It provides a rigorous, standardized method to evaluate recovery comprehensively, reduce the likelihood of setbacks, and promote sustained athletic performance (Miyahara et al., 2013).

A variety of interventions have been implemented for the management of ankle injuries in this review study, including manual techniques, mechanical devices, physical therapy, and comprehensive medical and nursing care. Myofascial techniques, the use of isoinertial devices, and neuromuscular taping such as Kinesio Taping with a 'fan cut' pattern and ankle balance taping, play an important role in improving the stability and function of the muscles and soft tissues around the ankle. Early mobilization with elastic bands and conventional physiotherapy, including exercise therapy using Wii Fit™, help speed the recovery of function and balance. Conservative approaches such as the RICE (Rest, Ice, Compression, Elevation) method and functional treatment with Tubigrip (TG) or Plaster of Paris (POP) remain the cornerstone in reducing swelling and pain. Prevention of sports injuries is also emphasized through adequate preparation before activity, increasing awareness of self-protection, and training in appropriate sports skills. In the context of nursing, ankle injury care includes local ice compress, administration of anti-inflammatory and analgesic drugs, and the use of topical medications

such as Voltaren and Yunnan Baiyao spray. For severe injuries, measures such as blood aspiration and injection of a mixture of lidocaine with glucocorticoids are performed to reduce adhesions and inflammation. In the later stages of recovery, combination therapies such as acupuncture, massage, and manual therapy are used to support joint function. The use of splints and elastic bandages also help stabilize and support the healing process. Overall, a multidisciplinary approach that integrates manual techniques, physical therapy, medical care, and preventive education provides optimal results in the management of ankle injuries.

Aquatic therapy may facilitate a quicker recovery process for elite athletes dealing with ankle sprains. The study revealed that aquatic therapy significantly enhances recovery outcomes for athletes. Participants who underwent aquatic therapy demonstrated notable improvements in muscle power, pain intensity, dynamic balance, and athletic performance metrics such as speed and jumping ability. Specifically, athletes in the aquatic therapy group returned to their sport approximately 4.7 weeks post-injury, compared to 7.7 weeks for those receiving conventional therapy (Sadaak et al., 2024).

CONCLUSION

A multidisciplinary approach that integrates manual techniques, physical therapy, medical care, and preventive education is essential for achieving optimal outcomes in the management of ankle injuries. Proper treatment and rehabilitation are crucial to ensure correct healing and to minimize the risk of re-injury, thereby promoting long-term joint health and function. However, despite advances in current practices, there remains a need for future research to establish comprehensive treatment protocols specifically for acute ankle sprains. Such research would enhance both short- and long-term clinical care, particularly within the nursing context, by providing evidence-based guidelines that improve patient recovery and reduce complications.

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