A Study to Compare the Effectiveness of Mulligan's Mobilization with Movement versus Ultrasound in Football Players with Ankle Sprain

Neethi M, [2]Dr. T. Karthikeyan,[3]Dr S Purna Chandra Shekhar, [4]Dr. Harsh kumar, [5]Dr Shanmuga Raju P, [6]A S Moorthy,[7]Ravi S.
[1]Professor, Sri Venkateshwaraa College of Physiotherapy, Puducherry.

[2]Associate Professor, Department of Physiotherapy, Gurugram University, Gurugram, Haryana, India.

[3]Professor, School of Physiotherapy, MNR University, Sangareddy, Telangana, India.

[4]Dr. Harsh kumar , Physiotherapy, Ortho Neuro Sports Healthcare Hardayal road, Gamitola, near petrol pump, Katihar, Bihar 854105
[5]Professor & HOD, department of Physiotherapy & Rehabilitation, Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar-505001, Telangana
[6]Physiotherapist, The Department of Plastic, Reconstructive & Burns Surgery, AIIMS, New Delhi.
[7]Consultant, AIIMS, New Delhi.

Abstract

This study aims to compare the effectiveness of Mulligan's Mobilization with Movement (MWM) and Ultrasound Therapy in the management of acute lateral ankle sprain among football players. Thirty participants diagnosed with grade II lateral ankle ligament sprains were randomly assigned into two groups: Group A (MWM) and Group B (Ultrasound). Outcome measures included Numerical Pain Rating Scale (NPRS), Range of Motion (ROM), and Foot and Ankle Ability Measure (FAAM). Results demonstrated significant improvements in both groups; however, MWM showed superior results in pain reduction, ROM enhancement, and functional improvement. The findings suggest that Mulligan's MWM is more effective than Ultrasound in acute ankle sprain rehabilitation.

Introduction

Ankle sprains are one of the most common musculoskeletal injuries in sports, accounting for nearly 85% of all ankle-related injuries. Football, being one of the most popular sports globally, is associated with a high incidence of ankle sprains due to rapid directional changes, physical contact, and repetitive stress. Lateral ligament sprains, involving the anterior talofibular ligament (ATFL), calcaneofibular ligament (CFL), and posterior talofibular ligament (PTFL), are the most frequently reported injuries. Traditional physiotherapy management includes modalities like ultrasound, which aids in pain relief and tissue healing. Conversely, Mulligan's Mobilization with Movement (MWM) is a manual therapy technique that restores pain-free mobility by applying a sustained glide to the joint while the patient performs active movements. This study investigates and compares the efficacy of these two approaches in football players with ankle sprains.

Methodology

The study adopted an experimental design with simple random sampling. A total of 30 football players aged between 15–30 years with clinically diagnosed grade II lateral ankle sprains were selected within 72 hours of injury. Participants were divided into two groups: Group A received Mulligan's Mobilization with Movement (MWM) and Group B received Ultrasound Therapy. MWM was applied using a mulligan belt with sustained posterior glide during active dorsiflexion, performed in 3 sessions per week with 3 sets of 10 repetitions. Ultrasound therapy was administered in pulsed mode at 1 MHz frequency, 1.5 W/cm^2 intensity for 10 minutes per session, three times a week. Outcome measures included NPRS, ROM using goniometer, and FAAM scale. Data were analyzed using paired and independent t-tests with a significance level set at $p < 0.05$.

Results

The results indicated that both interventions significantly improved pain, range of motion, and functional outcomes. MWM demonstrated greater reductions in NPRS scores (Mean = 5.33) compared to Ultrasound (Mean = 2.47). Similarly, dorsiflexion improved more in MWM (Mean = 6.20) than in Ultrasound (Mean = 2.93). Plantar flexion gains were also higher in MWM (Mean = 19.73) compared to Ultrasound (Mean = 9.07). FAAM scores increased significantly in both groups; however, MWM showed a greater improvement (Mean = 55.06) compared to Ultrasound (Mean = 24.53). Overall, statistical analysis confirmed that MWM was significantly more effective than Ultrasound in managing ankle sprain.

Discussion

The findings of this study are consistent with previous literature indicating that Mulligan's MWM technique produces immediate and sustained improvements in joint mobility and pain relief. The mechanical correction of positional faults combined with active

participation of the patient may explain the superior outcomes. Ultrasound therapy, while effective in reducing pain and inflammation, demonstrated relatively lower efficacy in improving functional outcomes compared to MWM. This suggests that manual therapy techniques like MWM may be more beneficial for athletes requiring rapid return to play.

Conclusion

Both Mulligan's Mobilization with Movement and Ultrasound Therapy are effective in treating acute lateral ankle sprains among football players. However, MWM provides superior outcomes in terms of pain reduction, range of motion improvement, and functional recovery. Therefore, it can be recommended as the primary intervention in sports physiotherapy management of ankle sprains.

Future Implications

Future studies with larger sample sizes, long-term follow-up, and inclusion of different grades of ankle sprains are warranted to validate these findings. Combining Mulligan's MWM with other physiotherapy modalities, such as exercise therapy and proprioceptive training, may further enhance recovery. The adoption of manual therapy in clinical and sports settings could reduce recurrence rates and improve athlete performance.

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