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The Effectiveness of Movement with Mobilization versus Ultrasound Therapy in the Management of Ankle Sprain in Soccer Players: A Case-Control Study

Dr. Surbhi Arya[1], Dr. Mumuksha Modi[2], Dr. Pooja Singh Chandel[3]

[1, 2, 3]Apex College of Nursing and Apex Paramedical Institute, Varanasi, U.P., India

Abstract: ***Background: Ankle sprain is one of the most common musculoskeletal injuries in soccer players, often leading to pain, swelling, and reduced range of motion (ROM). Conservative physiotherapy interventions such as Mobilization with Movement (MWM) and Ultrasound (US) are widely used. Objective: To compare the effectiveness of MWM and US therapy in improving pain, swelling, ROM, and functional activity in soccer players with ankle sprain. Methods: A total of 50 subjects were screened, of which 30 were randomized into two groups: Group I (MWM, n=15) and Group II (US, n=15). Both groups underwent a 3-month intervention protocol with 36 treatment sessions. Assessment parameters included swelling (Figure-of-eight method), ankle dorsiflexion (weight-bearing lunge test), pain intensity (VAS), ROM, and stress test. Results: Both interventions demonstrated significant improvements in swelling reduction, pain intensity, and ankle ROM. However, MWM showed superior outcomes in restoring functional stability, reducing pain intensity earlier, and enabling quicker return to sport. Conclusion: MWM is more effective than US therapy in rehabilitating ankle sprain among soccer players. Early application of MWM may enhance recovery, reduce recurrence, and improve long-term ankle stability.***

Keywords: Ankle sprain, soccer players, mobilization with movement, ultrasound therapy, physiotherapy rehabilitation

1. Introduction

Ankle sprains account for nearly 40% of all sports-related injuries, with soccer being one of the most affected sports. Lateral ankle ligament injuries, particularly to the anterior talofibular ligament (ATFL), result in pain, swelling, and functional disability.

Traditional treatment includes rest, ice, compression, elevation (RICE), taping, ultrasound therapy, and therapeutic exercises.
Mulligan's concept of Mobilization with Movement (MWM) has gained attention for its ability to restore pain-free joint mechanics.

This study compares the effectiveness of MWM and US in soccer players diagnosed with ankle sprain.

2. Methodology

Study Design: Randomized controlled trial (case-control study).

Sample: 50 subjects screened, 30 included (n=15 MWM, n=15 US).

Inclusion criteria: Soccer players, aged 18–30, diagnosed with acute ankle sprain (grade I/II).

Exclusion criteria: Previous ankle fractures, severe ligament tear, chronic ankle instability, systemic illness.

Interventions:

- Group I (MWM): Three sessions/week for 12 weeks. Therapist-applied Mulligan technique with stabilization of talus and anterior tibiofibular glide during functional movement.
- Group II (US): Active ultrasound therapy with adjunct ice packs, Tubigrip, and exercise rehabilitation.

Outcome Measures:
1) Swelling – Figure-of-eight method
2) Ankle dorsiflexion – Weight-bearing lunge test
3) Pain – Visual Analogue Scale (VAS)
4) ROM – Goniometric measurement
5) Functional stability – Stress test

Data Analysis: Descriptive and comparative statistics (paired and unpaired t-tests).

3. Results

Both groups improved significantly across all parameters.

MWM group demonstrated earlier reduction in swelling ($p<0.05$), greater improvement in dorsiflexion, and higher functional stability compared to US group.

Return-to-sport readiness was achieved earlier in MWM group (~9 weeks) versus US group (~12 weeks).

4. Discussion

Findings support Mulligan's concept that MWM restores positional faults of the ankle joint, enabling pain-free motion and faster rehabilitation.

US therapy demonstrated benefits in pain reduction and tissue healing, but lacked significant impact on functional outcomes compared to MWM.

Clinical implication: Early introduction of MWM in physiotherapy rehabilitation of ankle sprain enhances return to sport and reduces risk of chronic instability.

5. Conclusion

MWM is a superior intervention compared to US therapy for the management of ankle sprains in soccer players. It should be considered as a primary physiotherapy technique to improve joint stability, reduce recurrence, and facilitate early return to sport.

References

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