

Pulsed Electromagnetic Field Therapy for Anterior Cruciate Ligament Injury: A Pilot Clinical Study

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ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) injuries are common among young and physically active individuals and are frequently associated with pain, restricted knee mobility, and functional limitations that adversely affect quality of life. Pulsed Electromagnetic Field (PEMF) therapy has emerged as a non-invasive electrotherapy modality with potential benefits in musculoskeletal rehabilitation through its effects on pain reduction, inflammation modulation, and tissue repair. However, despite its growing clinical use, there is a lack of studies investigating the efficacy of PEMF therapy in individuals with ACL injuries.

Aim: To assess the effectiveness of PEMF therapy combined with conventional physiotherapy in pain relief and functional recovery among patients with Grade I-II ACL injuries.

Materials and Methods: This pilot clinical study evaluated the effectiveness of PEMF therapy in the rehabilitation of patients with Grade I-II ACL injuries. A total of 20 participants received PEMF

therapy using the ALMAG-02 device by Elamed in combination with conventional physiotherapy rehabilitation for four weeks. Pain intensity was assessed using the Numerical Rating Scale (NRS), functional performance using the International Knee Documentation Committee (IKDC) score, knee range of motion using a goniometer, and quality of life using the Short Form-36 (SF-36) questionnaire.

Results: Statistically significant improvements were observed in pain intensity, knee range of motion, functional performance, and quality of life following treatment. Pain scores decreased significantly, while knee flexion, IKDC functional scores, and SF-36 quality of life scores showed marked improvement after the intervention.

Conclusion: PEMF therapy combined with conventional rehabilitation may be effective in reducing pain and improving functional recovery, knee mobility, and quality of life in patients with Grade I-II ACL injuries.

Keywords: Anterior cruciate ligament injuries, Pain, Physical therapy, Quality of life, Rehabilitation.

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