

Efficacy of Pulsed Electromagnetic Field on Pain and Physical Function among Individuals with Knee Osteoarthritis

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ABSTRACT

Introduction: Knee Osteoarthritis (OA) is one of the most common causes of pain and disability, particularly among older adults and individuals with obesity. Conventional treatments such as Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), intra-articular injections, and surgery may provide limited or unsatisfactory outcomes. Pulsed Electromagnetic Field (PEMF) therapy has emerged as a non-invasive modality that may promote chondrocyte growth, cartilage matrix production, and subchondral bone quality. However, its clinical efficacy requires further exploration.

Aim: To compare the effects of PEMF therapy on pain and physical function among individuals with knee OA.

Materials and Methods: A randomised controlled trial was conducted involving 80 participants aged 40-60 years who were clinically and radiographically diagnosed with knee OA (Kellgren–Lawrence Grade I–III). Participants were divided into two groups: Group A received conventional therapy, while Group B

received PEMF therapy (Almag-02 device by Elamed) in addition to conventional therapy. Pain intensity was assessed using the Numerical Pain Rating Scale (NPRS), knee range of motion was measured using goniometry, and physical function was evaluated using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Results: Both PEMF therapy combined with exercise and ultrasonic therapy combined with exercise produced significant improvements in pain and physical function over six weeks. Statistically significant improvements were observed in WOMAC and NPRS scores within both groups; however, no statistically significant difference was found between the two interventions.

Conclusion: PEMF therapy appears to be a safe and cost-effective adjunct to conventional physiotherapy for improving pain and physical function in individuals with knee osteoarthritis.

Keywords: Pain Management, Physical functional performance, Physical therapy, Randomised controlled trial.

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