

Effects of A Pulsed Electromagnetic Field Based on Kellgren-Lawrence Grading for Knee Osteoarthritis: A Systematic Review

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Abstract

Introduction: The degeneration of cartilage in the knee joint results in osteoarthritis. The pulsed electromagnetic field (PEMF) is a novel approach to controlling inflammation, which may greatly impact tissue regeneration. This study aims to determine the efficacy of pulsed electromagnetic fields (PEMFs) in treating osteoarthritis (OA) using the Kellgren-Lawrence grading system.

Methods: The systematic review, which was conducted using computerised searches from the following 4 databases: Google Scholar, PubMed and Web of Science, Medline inception from 2014-2024 were searched for randomised controlled trials involving patients with osteoarthritis receiving PEMF therapy in this systematic review, which adhered to PRISMA criteria. Based on the inclusion criteria, 12 random controlled group trials from 217 articles were retrieved.

Results: In the total of 7 studies, 5 research studies state that the PEMF was effective in managing pain, stiffness, and physical functioning, and 2 studies state that the PEMF was also effective in post-TKR participants. PEMF treatment showed promise and, most notably, outcome in treating osteoarthritis in the knee. VAS and WOMAC scores for pain reduction indicated a notable improvement.

Conclusion: Pulsed electromagnetic field-based therapies show promise for knee osteoarthritis regarding pain management, stiffness reduction, and functional restoration. TKR rehabilitation with PEMF benefits knee recovery, even though physiotherapy management does not support the evidence for a grade 4 Kellgren Lawrence grading. However, for chondrocytes and cartilage regeneration, more high-quality research is needed, as well as comparison trials with evidence of clinical effects.