

# Comparative Analysis of TECAR Therapy Modes for Functional Improvement in Knee Osteoarthritis

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## ABSTRACT

**Introduction:** Knee osteoarthritis is a chronic degenerative condition characterised by pain, reduced physical function, impaired joint position sense, and balance disturbances. Transfer Energy Capacitive and Resistive (TECAR) therapy has emerged as a supportive modality in musculoskeletal rehabilitation; however, comparative evidence regarding different application modes remains limited.

**Aim:** To compare the therapeutic effectiveness of two TECAR therapy modes combined with conventional exercise therapy in individuals with Grade II knee osteoarthritis.

**Materials and Methods:** A randomised comparative study was conducted among individuals diagnosed with Grade II knee osteoarthritis. Participants were allocated into two intervention groups. One group received capacitive-mode TECAR therapy with conventional exercises, while the second group received resistive-mode TECAR therapy with the same exercise program. Interventions were administered over multiple treatment sessions. Clinical outcomes, including pain, function, proprioception, and balance,

were assessed using standardised outcome measures. Statistical analysis was performed using repeated measures analysis, with significance set at  $p < 0.05$ .

**Results:** Both intervention groups demonstrated statistically significant improvements in pain, function, proprioception, and balance following treatment ( $p < 0.05$ ). Comparative analysis indicated greater improvement in pain relief, function, and proprioception in the resistive TECAR group. However, no statistically significant between-group differences were observed for balance outcomes ( $p > 0.05$ ).

**Conclusion:** Both TECAR therapy modes combined with conventional exercises were effective in improving clinical outcomes in individuals with Grade II knee osteoarthritis. Nevertheless, the resistive mode demonstrated comparatively superior benefits in pain reduction, functional recovery, and proprioception, suggesting greater therapeutic potential in knee osteoarthritis rehabilitation.

**Keywords:** Balance, Knee osteoarthritis, Proprioception, Rehabilitation, Transfer energy capacitive and resistive therapy.

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