

Effectiveness of TECAR Therapy in Individuals with Chronic Musculoskeletal Pain: A Systematic Review

ALISHA PAUDEL¹, PANKAJ KUMAR MALIK², SADHANA MEENA³

ABSTRACT

Introduction: Transfer Energy Capacitive and Resistive (TECAR) therapy has emerged as a promising non-invasive treatment for chronic musculoskeletal pain. Despite its widespread clinical use, the supporting evidence remains limited and requires systematic synthesis.

Aim: To comprehensively evaluate the effectiveness of TECAR therapy in reducing pain intensity and improving functional outcomes in individuals with chronic musculoskeletal pain.

Materials and Methods: A systematic literature search was conducted in the Scopus database from inception to January 2026. Only Randomised Controlled Trials (RCTs) investigating TECAR therapy in adults with chronic musculoskeletal pain were included. Methodological quality was assessed using the PEDro scale, and risk of bias was evaluated using the Cochrane Risk of Bias 2.0 tool. Primary outcomes included pain intensity {Visual Analogue Scale (VAS), Numerical Pain Rating Scale (NPRS)}, while secondary outcomes encompassed functional disability, pressure pain threshold, range of motion, and quality of life.

Results: Eight RCTs involving 428 participants with an age range of 18-75 years met the inclusion criteria. Conditions studied included

chronic low back pain (n=3), adhesive capsulitis (n=1), chronic neck pain (n=1), myofascial pain syndrome (n=1), knee osteoarthritis (n=1), and chronic groin pain (n=1). TECAR therapy was administered alone or combined with manual therapy, myofascial release, or conventional physiotherapy. All studies demonstrated statistically significant reductions in pain intensity ($p<0.05$), with consistent improvements in functional disability, pressure pain threshold, joint mobility, and health-related quality of life. Methodological quality ranged from fair to good (PEDro scores: 5-8/10), with most studies showing low to moderate risk of bias.

Conclusion: This systematic review provides moderate-quality evidence supporting TECAR therapy as an effective intervention for chronic musculoskeletal pain, particularly when combined with conventional physiotherapy or manual therapy. However, heterogeneity in treatment protocols and outcome measures limits definitive conclusions. Future high-quality RCTs with standardised protocols and long-term follow-up are warranted.

Keywords: Capacitive and resistive electric transfer, Diathermy, Pain management, Transfer energy capacitive and resistive.

PARTICULARS OF CONTRIBUTORS:

1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Pankaj Kumar Malik,
Assistant Professor III, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkmalik@amity.edu; pankajkmalik@gmail.com