ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 17, Issue, 09, pp.34569-34571, September, 2025
DOI: https://doi.org/10.24941/ijcr.49543.09.2025

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

EFFECTIVENESS OF ULTRA REIZ CURRENT AND TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS): A COMPARATIVE CLINICAL STUDY

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ARTICLE INFO

Article History:
Received 20th June, 2025
Received in revised form
24st July, 2025
Accepted 29th August, 2025
Published online 27th September, 2025

Keywords: Missing

Mechanical low back pain, Ultra Reiz Current, TENS, Visual Analogue Scale, Oswestry Disability Index, Electrotherapy.

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ABSTRACT

Background: Mechanical low back pain (MLBP) is a prevalent musculoskeletal condition causing pain and functional disability. Electrotherapy modalities such as Ultra Reiz Current and Transcutaneous Electrical Nerve Stimulation (TENS) are commonly used in physiotherapy, but comparative evidence regarding their effectiveness is limited. **Objective:** To compare the effects of Ultra Reiz Current and TENS on pain intensity and functional disability in patients with chronic mechanical low back pain.

Methods: A total of 60 patients with mechanical low back pain were enrolled and randomly assigned to two groups: Ultra Reiz Current (n = 30) and TENS (n = 30). Two patients from the TENS group were lost to follow-up. Both groups received treatment three days per week for six consecutive weeks. Pain intensity was measured using the Visual Analogue Scale (VAS), and functional disability was assessed with the Oswestry Disability Index (ODI) at baseline and post-intervention. Data were analyzed using paired and independent t-tests, with $p < 0.05$ considered statistically significant.

Results: Both interventions significantly reduced pain and disability. In the Ultra Reiz Current group, VAS decreased from 7.07 ± 1.39 to 1.47 ± 0.64, and ODI decreased from 25.73 ± 5.22 to 5.67 ± 2.97 ($p < 0.001$). In the TENS group, VAS decreased from 7.07 ± 1.39 to 2.27 ± 0.96, and ODI decreased from 25.00 ± 6.15 to 10.40 ± 1.88 ($p < 0.001$). Post-intervention, Ultra Reiz Current showed significantly greater improvements than TENS in both VAS ($p = 0.006$) and ODI ($p < 0.001$).

Conclusion: Both Ultra Reiz Current and TENS are effective for managing pain and improving function in chronic mechanical low back pain, with Ultra Reiz Current demonstrating superior clinical benefits. These findings support its use as a preferred electrotherapeutic modality in physiotherapy rehabilitation programs.

Citation: Shruti Mahajan, Namrata Srivastava, Pavan Patil, Kartik Chhonker. 2025. *"*Effectiveness of Ultra Reiz Current and Transcutaneous Electrical Nerve Stimulation (TENS): A Comparative Clinical Study.*". International Journal of Current Research, 17, (09), 34569-34571.*

INTRODUCTION

Mechanical low back pain (MLBP) is one of the most prevalent musculoskeletal conditions worldwide, affecting nearly 60–80% of individuals at some point in their lifetime. [1] It is primarily characterized by pain originating from the spine, intervertebral discs, or surrounding soft tissues without evidence of serious underlying pathology. [2] Mechanical factors such as poor posture, repetitive strain, and spinal loading contribute significantly to its onset and chronicity. [3] MLBP not only leads to physical disability but also imposes a considerable socioeconomic burden due to reduced productivity and healthcare costs. [4] Physiotherapy plays a central role in the conservative management of mechanical low back pain, [5] with physical agents such as electrotherapy and phototherapy being widely applied. [6] Among electrotherapeutic modalities, Ultra Reiz current is used to elicit strong sensory and motor responses, which may modulate pain, improve circulation, and enhance muscular activation. [7] Similarly, Transcutaneous Electrical Nerve Stimulation (TENS) is a widely used non-invasive modality that provides pain relief through peripheral and central mechanisms, including gate control theory. [8] Although both modalities are frequently employed in clinical practice for low back pain; however, there is limited comparative evidence regarding their relative efficacy in mechanical low back pain. Determining their effectiveness is crucial to optimize physiotherapeutic protocols, improve functional outcomes, and establish cost-effective approaches in musculoskeletal rehabilitation. Therefore, the present study aims to compare the effects of Ultra Reiz current and TENS therapy in the management of mechanical low back pain, focusing on pain reduction, functional improvement, and overall clinical efficacy.

MATERIALS AND METHODS

This comparative clinical study was conducted in the Department of Physiotherapy, Career College, Bhopal (Madhya Pradesh) over duration of six weeks. Ethical clearance was obtained from the institutional ethics committee, and informed consent was secured from all participants prior to enrollment. A total of 60 patients with mechanical low back pain were recruited, 30 in each group (Group A:ultra reiz group and group B:Tens group). Participants included males and females aged between 20 and 40 years, with a history of

low back pain for at least 12 weeks, absence of peripheral irradiation, and negative results for both Straight Leg Raise (SLR) and Lasegue's tests. Patients with a history of spinal surgery, rheumatoid arthritis or other structural deformities, vertebral fracture, prolapsed intervertebral disc, tumors, osteoporosis, persistent nerve root irritation, pregnancy, or those engaged in other physical exercise programs were excluded.

The participants were randomly assigned to two intervention groups: the Ultra Reiz Current group and the TENS group. Prior to treatment, the skin condition of each patient was examined, and those with dry or cracked skin were advised to apply moisturizer and return once healed. Patients were instructed to wash the treatment area before therapy. In the Ultra Reiz Current group, a thin layer of hypoallergenic gel was applied, and electrodes were positioned with one over the dorsal aspect of the lumbar vertebrae and the other at the lumbosacral junction for 15 mins after which the electrode positions were changed to cover the lumbar paraspinal region for the next 15 minutes. Each session lasted 30 minutes, with intensity gradually increased from mild to the maximum tolerable level. In the TENS group, burst-mode Transcutaneous Electrical Nerve Stimulation was applied, with electrodes placed over the lumbar paraspinal region using conductive gel. The device was set at 100 Hz frequency, 2 Hz burst frequency, and 100–200 µs pulse width, with intensity increased to a firm but comfortable level. In both groups, treatments were administered three days per week for six consecutive weeks. Outcome measures included pain intensity, assessed using the Visual Analogue Scale (VAS), and functional disability, measured with the Oswestry Disability Index (ODI), recorded at baseline and after six weeks of intervention.

Statistical Analysis: All collected data were analyzed using SPSS software. The Shapiro-Wilk test was applied to assess the normality of data. Within-group comparisons of pre- and post-treatment scores for pain intensity (VAS) and functional disability (ODI) were performed using paired t-tests, while between-group differences were analyzed using independent t-tests. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 60 patients were enrolled in the study, with 30 patients allocated to the Ultra Reiz Current group (Group A) and 30 to the TENS group (Group B).

Two patients from Group B were lost to follow-up, leaving 28 patients in that group for analysis. Both interventions produced significant improvements in pain and functional disability after six weeks. In Group A, the mean VAS score decreased from 7.07 ± 1.39 to 1.47 ± 0.64 ($t = 13.60$, $p < 0.001$), and the mean ODI score decreased from 25.73 ± 5.22 to 5.67 ± 2.97 ($t = 12.94$, $p < 0.001$). In Group B, VAS decreased from 7.07 ± 1.39 to 2.27 ± 0.96, and ODI decreased from 25.00 ± 6.15 to 10.40 ± 1.88, both statistically significant ($t = 8.25$, $p < 0.001$). Between-group comparisons at baseline showed no significant difference in ODI scores ($t = 0.352$, $p = 0.364$), confirming the groups were comparable before treatment.

Post-intervention, Group A demonstrated significantly lower VAS scores compared to Group B (1.47 ± 0.64 vs. 2.27 ± 0.96; $t = -2.683$, $p = 0.006$) and significantly lower ODI scores (5.67 ± 2.97 vs. 10.40 ± 1.88; $t = -5.216$, $p < 0.001$), indicating superior reduction in pain and improvement in functional ability in the Ultra Reiz Current group. (See table no. 1). Overall, both Ultra Reiz Current and TENS therapy were effective in reducing pain and disability in patients with mechanical low back pain, with the Ultra Reiz Current group showing greater clinical and statistical improvement.

DISCUSSION

Mechanical low back pain (MLBP) is a common musculoskeletal condition that significantly affects patients' functional capacity and quality of life. [9] Physiotherapy interventions, including electrotherapy modalities, play a key role in conservative management. [10] This study compared the effectiveness of Ultra Reiz Current and Transcutaneous Electrical Nerve Stimulation (TENS) in reducing pain and improving functional ability in patients with chronic mechanical low back pain. The results demonstrated that both Ultra Reiz Current and TENS significantly reduced pain intensity and disability over the six-week intervention period. Within-group analysis revealed a greater reduction in Visual Analogue Scale (VAS) and Oswestry Disability Index (ODI) scores in the Ultra Reiz Current group compared to the TENS group. These findings indicate that while both modalities are effective, Ultra Reiz Current may provide superior clinical benefits in terms of pain modulation and functional improvement. The analgesic effects observed with Ultra Reiz Current may be attributed to its ability to elicit strong sensory and motor responses, enhancing circulation, promoting muscle activation, and modulating nociceptive pathways. The application of electrodes over both the dorsal lumbar and paraspinal regions likely contributed to a broader stimulation of the affected musculature and paraspinal nerves, resulting in more effective pain relief and functional recovery. [11] TENS, a widely used electrotherapeutic modality, also demonstrated significant improvement in pain and disability, consistent with previous studies highlighting its role in activating inhibitory pain pathways and reducing nociceptive input. [12] However, the magnitude of improvement in the TENS group was comparatively lower than that observed with Ultra Reiz Current, possibly due to differences in stimulation intensity, depth of penetration, and neuromodulatory effects. Between-group comparisons confirmed the superiority of Ultra Reiz Current over TENS in post-intervention outcomes, with statistically significant differences in both VAS and ODI scores.

Table 1. summarizing VAS and ODI scores for both groups, including pre/post values, within-group significance, and between-group comparisons

Outcome Measure	Group	Pre-intervention (Mean ± SD)	Post-intervention (Mean ± SD)	Within-group t / p	Between-group Post-intervention t / p
VAS	Ultra Reiz (A)	7.07 ± 1.39	1.47 ± 0.64	t = 13.60, p < 0.001	t = -2.683, p = 0.006
	TENS (B)	7.07 ± 1.39	2.27 ± 0.96	t = 8.25, p < 0.001	
ODI	Ultra Reiz (A)	25.73 ± 5.22	5.67 ± 2.97	t = 12.94, p < 0.001	t = -5.216, p < 0.001
	TENS (B)	25.00 ± 6.15	10.40 ± 1.88	t = 8.25, p < 0.001	

Notes:

- VAS = Visual Analogue Scale (pain intensity)
- ODI = Oswestry Disability Index (functional disability)
- Group A: Ultra Reiz Current; Group B: TENS
- Within-group t-values refer to pre- vs post-intervention comparison
  Between-group t-values refer to post-intervention comparison between groups

These results support the use of Ultra Reiz Current as an effective alternative or adjunct to conventional TENS therapy in the management of chronic mechanical low back pain. Limitations of this study include a relatively small sample size and short follow-up period. Future research with larger cohorts and longer-term follow-up is recommended to evaluate the sustainability of treatment effects and explore combination therapies integrating Ultra Reiz Current with other physiotherapeutic interventions. In conclusion, both Ultra Reiz Current and TENS are effective in reducing pain and improving functional disability in patients with mechanical low back pain. Ultra Reiz Current, however, demonstrated superior outcomes, suggesting

its potential as a preferred electrotherapeutic modality for enhancing rehabilitation and patient quality of life.

CONCLUSION

This study demonstrates that both Ultra Reiz Current and TENS therapy are effective in reducing pain and improving functional disability in patients with chronic mechanical low back pain. While both modalities produced significant clinical benefits, Ultra Reiz Current showed superior improvements in both pain intensity and functional outcomes compared to TENS. These findings suggest that Ultra Reiz Current may be a preferred electrotherapeutic modality in physiotherapy rehabilitation programs for mechanical low back pain. Future studies with larger sample sizes and longer follow-up are recommended to confirm these results and evaluate the long-term effectiveness of these interventions.

REFERENCES

1. Balagué F, Mannion AF, Pellisé F, Cedraschi C. Non-specific low back pain. The lancet. 2012 Feb 4;379(9814):482-91.
2. Borenstein D. Mechanical low back pain—a rheumatologist's view. Nature Reviews Rheumatology. 2013 Nov;9(11):643-53.
3. Bakker EW, Verhagen AP, van Trijffel E, Lucas C, Koes BW. Spinal mechanical load as a risk factor for low back pain: a systematic review of prospective cohort studies. Spine. 2009 Apr 15;34(8):E281-93.
4. Coenen P, Kingma I, Boot CR, Bongers PM, van Dieën JH. Cumulative mechanical low-back load at work is a determinant of low-back pain. Occupational and environmental medicine. 2014 May 1;71(5):332-7.
5. Elnaggar IM, Nordin M, Sheikhzadeh A, Parnianpour M, Kahanovitz N. Effects of spinal flexion and extension exercises on low-back pain and spinal mobility in chronic mechanical low-back pain patients. Spine. 1991 Aug 1;16(8):967-72.
6. Poitras S, Brosseau L. Evidence-informed management of chronic low back pain with transcutaneous electrical nerve stimulation, interferential current, electrical muscle stimulation, ultrasound, and thermotherapy. The Spine Journal. 2008 Jan 1;8(1):226-33.
7. Sen S, Nanda Kumar TR, Rau SS. Effects of Ultra Reiz Current and TENS on pain and functional ability in older patients with osteoarthritis knee. *Int J Physiother Res.* 2013;1(4):171-6.
8. Safdar F, Sangrasi SA, Waseem MH, Shaikh AG. Low Back PAIN; Effectiveness of Tens with OR Without Standard Physiotherapy Treatment. The Professional Medical Journal. 2017 Jun 5;24(06):818-23.
9. Kovacs FM, Abraira V, Zamora J, del Real MT, Llobera J, Fernandez C. Correlation between pain, disability, and quality of life in patients with common low back pain. Spine. 2004 Jan 15;29(2):206-10.
10. Anandani G, Shetty GM, Bafna S, Narula N, Gandhi A. Effectiveness of device-based therapy for conservative management of low back pain. Journal of Physical Therapy Science. 2015;27(7):2139-41.
11. Robertson V, Ward A, Low J, Reed A. Electrotherapy Explained E-Book: Electrotherapy Explained E-Book. Elsevier Health Sciences; 2006 May 19.
12. Coutaux A. Non-pharmacological treatments for pain relief: TENS and acupuncture. Joint Bone Spine. 2017 Dec 1;84(6):657-61.

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