RESEARCH PAPER

Comparative Evaluation of Counterforce Bracing versus Wrist Extension Splinting in Lateral Epicondylitis: Effect on Pain, Grip Strength, Functional Disability, and Patient Satisfaction

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Abstract

Background: Lateral epicondylitis is a common overuse disorder characterized by lateral elbow pain, reduced grip strength, and functional limitation. External supports such as counterforce braces and wrist extension splints are frequently used as conservative treatment options. However, their comparative effects on clinical and patient-reported outcomes remain clinically relevant.

Aim: To compare the effectiveness of counterforce bracing and wrist extension splinting on pain, grip strength, functional disability, and patient satisfaction in patients with lateral epicondylitis.

Methods: A prospective comparative interventional study was conducted among 50 patients with clinically diagnosed lateral epicondylitis. Participants were divided equally into two groups of 25 each. Group A received counterforce bracing, while Group B received wrist extension splinting. Pain intensity, grip strength, functional disability, and patient satisfaction were assessed before and after the intervention. Appropriate statistical tests were applied, and $p<0.05$ was considered statistically significant**.**

Results: Both groups demonstrated significant improvement in pain and grip strength following intervention ($p<0.001$). Pain reduction was 2.38 ± 0.86 in the counterforce group and 2.18 ± 0.79 in the wrist splint group ($p=0.459$). Grip strength improved by 4.34 ± 1.93 kg and 3.42 ± 2.27 kg, respectively ($p=0.097$). Functional disability improved significantly more with counterforce bracing (17.24 ± 5.21 vs. 12.54 ± 5.04; $p=0.002$). Patient satisfaction was also higher with counterforce bracing ($p=0.010$).

Conclusion: Both interventions improved clinical outcomes, while counterforce bracing demonstrated greater functional improvement and patient satisfaction.

Keywords: Counterforce bracing; Lateral epicondylitis; Grip strength; Wrist splint; Functional disability.

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Introduction

Lateral epicondylitis, commonly known as tennis elbow, is a frequent musculoskeletal disorder characterized by pain and tenderness around the lateral aspect of the elbow, particularly over the common extensor tendon origin at the lateral epicondyle. Despite its name, the condition is not restricted to tennis players and commonly affects individuals involved in repetitive occupational, household, and sporting activities requiring repeated wrist extension, forearm rotation, or forceful gripping. The disorder is generally considered a tendinopathy rather than a purely inflammatory condition, with repetitive mechanical loading producing microscopic tendon degeneration, disorganized collagen architecture, and impaired tendon capacity to tolerate further stress [1]. Although lateral epicondylitis is usually self-limiting, symptoms may persist for several months and can substantially interfere with work, recreational activities, sleep, and routine daily functions [2].

Pain is the most prominent clinical manifestation and is typically aggravated by resisted wrist or finger extension, gripping, lifting, and repetitive forearm activities. Reduced hand-grip strength is also frequently observed because pain inhibits force generation and limits functional use of the affected

upper limb [3]. Persistent symptoms may result in difficulty performing occupational tasks and activities of daily living, thereby contributing to functional disability and reduced quality of life. Clinical assessment is primarily based on history and physical examination, while imaging is generally reserved for atypical or persistent cases. Management is therefore directed toward reducing pain, modifying mechanical stress, improving tendon loading tolerance, and restoring functional capacity [4].

Conservative treatment remains the mainstay of management and includes activity modification, therapeutic exercise, manual therapy, physical modalities, analgesic medication, and external supports. Among the commonly used conservative interventions, bracing and splinting are attractive because they are relatively simple, inexpensive, non-invasive, and can be incorporated into routine activities [5]. Counterforce bracing is designed to apply pressure around the proximal forearm, thereby altering the distribution of forces transmitted through the extensor muscle-tendon unit during gripping and wrist movements. By reducing mechanical stress at the lateral epicondyle, a counterforce brace may decrease pain during activity and permit improved functional use of the limb [6].

Wrist extension splinting represents another biomechanical approach to managing lateral epicondylitis. A wrist extension splint maintains the wrist in a controlled position and limits excessive wrist extension, thereby reducing activation and repetitive loading of the wrist extensor musculature during functional activities. This may decrease strain on the affected tendon origin and provide symptomatic relief while allowing the tissues to recover [7]. However, the relative effectiveness of counterforce bracing and wrist extension splinting remains clinically relevant because the two interventions modify tendon loading through different mechanical mechanisms. Differences in comfort, mobility restriction, adherence, and suitability for occupational activities may also influence treatment outcomes and patient acceptance [8].

Evaluation of treatment effectiveness should extend beyond pain reduction alone. Grip strength provides an objective measure of functional recovery, while validated functional disability measures help determine the extent to which symptoms interfere with daily activities. Patient satisfaction is additionally important because perceived comfort, convenience, and usefulness of an intervention may influence adherence and overall treatment success [9]. A comprehensive assessment incorporating these outcomes can therefore provide a more meaningful comparison between different bracing strategies.

Despite the widespread clinical use of both counterforce braces and wrist extension splints, uncertainty regarding their comparative benefits supports the need for direct evaluation [10]. Comparing these interventions in terms of pain, grip strength, functional disability, and patient satisfaction may help identify which approach provides greater clinical and functional benefit for individuals with lateral epicondylitis. Such evidence may assist clinicians in selecting an appropriate external support according to symptom severity, functional requirements, comfort, and patient preference, while contributing to a more individualized approach to conservative management.

1.Methdology

1.1.Study Design

A prospective, comparative, interventional study was conducted to evaluate and compare the effectiveness of **counterforce bracing versus wrist extension splinting** in patients diagnosed with lateral epicondylitis.

1.2.Study Setting

The study was conducted in the Department of Orthopaedics/Physiotherapy at the study institution.

1.3.Study Duration

The study was conducted over a period of **12 months**.

1.4.Participants – Inclusion and Exclusion Criteria

Inclusion criteria:

- Patients aged **18 years or above**.
- Patients clinically diagnosed with lateral epicondylitis.
- Patients presenting with pain and tenderness localized around the lateral epicondyle.
- Patients with pain aggravated by resisted wrist extension or gripping activities.
- Patients willing to participate in the study and comply with the prescribed intervention and follow-up schedule.
- Patients who provided written informed consent.

Exclusion criteria:

- Patients with previous surgery around the affected elbow or forearm.
- Patients with associated fracture, dislocation, or major traumatic injury of the elbow or wrist.
- Patients with clinically significant cervical radiculopathy or peripheral neuropathy affecting the upper limb.
- Patients with inflammatory arthritis or other systemic musculoskeletal disorders affecting the upper limb.

- Patients who had received recent invasive treatment, such as corticosteroid injection, for lateral epicondylitis.
- Patients with severe neurological or cognitive impairment preventing reliable assessment.
- Patients who were unable or unwilling to comply with the study protocol or follow-up assessment.

1.5.Study Sampling

Participants were recruited using **consecutive sampling** from patients attending the study institution who fulfilled the eligibility criteria. Each patient underwent clinical assessment before enrollment. Eligible and consenting participants were included until the required sample size was achieved. The sampling procedure was continued systematically throughout the study period to minimize selective recruitment and ensure that participants meeting the predefined criteria were considered for inclusion.

1.6.Study Sample Size

The study included a total sample of 50 participants with clinically diagnosed lateral epicondylitis. The participants were divided equally into two groups, with 25 participants in each group. The sample was considered adequate for the planned comparative assessment of pain, grip strength, functional disability, and patient satisfaction between the two treatment approaches.

1.7.Study Groups

The enrolled participants were divided into two groups. Group A (n=25) received treatment using a counterforce brace, which was positioned around the proximal forearm below the lateral epicondyle to provide controlled compression and reduce mechanical loading of the extensor tendon complex. Group B (n=25) received a wrist extension splint, which maintained the wrist in a controlled extension position and restricted excessive wrist movement and extensor muscle loading. Both groups received standardized instructions regarding use of the assigned support, activity modification, and compliance with the treatment protocol.

1.8.Study Parameters

The primary study parameters included pain intensity, grip strength, functional disability, and patient satisfaction. Pain was assessed using a standardized pain-rating scale, with higher scores indicating greater pain severity. Grip strength was assessed using a hand dynamometer under standardized testing conditions. Functional disability was evaluated using a validated elbow/upper-limb functional disability questionnaire appropriate for lateral epicondylitis. Patient satisfaction was assessed after completion of treatment using a structured satisfaction rating. Baseline and post-intervention values were recorded for comparison.

1.9.Study Procedure

After enrollment, demographic and clinical information was recorded and baseline assessment was performed. Pain intensity, grip strength, functional disability, and other relevant clinical findings were documented before initiation of treatment. Participants in Group A were fitted with an appropriately sized counterforce brace, while participants in Group B were fitted with a wrist extension splint. The correct positioning and method of application were demonstrated to each participant. Participants were instructed regarding the duration and appropriate circumstances for wearing the assigned support and were advised to avoid activities that markedly aggravated symptoms. At the end of the predetermined intervention period, participants returned for reassessment. The same outcome measures were repeated using the same assessment methods to ensure comparability between baseline and follow-up measurements.

1.10.Study Data Collection

Data were collected using a structured proforma prepared for the study. Demographic characteristics, clinical history, affected side, symptom duration, and relevant examination findings were documented at baseline. Pain scores, grip-strength measurements, functional disability scores, and patient satisfaction scores were recorded at the specified assessment points. Grip strength measurements were obtained using standardized positioning and technique, and appropriate care was taken to maintain consistency during repeated measurements. All collected information was checked for completeness before being entered into the study database.

1.11.Data Analysis

The collected data were entered into Microsoft Excel and subsequently analyzed using appropriate statistical software. Continuous variables were summarized as **mean ± standard deviation**, while categorical variables were expressed as frequencies and percentages. Within-group changes in pain, grip strength, and functional disability were evaluated using appropriate paired statistical tests. Between-group differences were assessed using independent statistical tests appropriate to the distribution of the data. Categorical variables were compared using the chi-square test or Fisher's exact test wherever appropriate. A **p-value <0.05** was considered statistically significant.

1.12.Ethical Considerations

The study was conducted after obtaining approval from the Institutional Ethics Committee. All eligible participants were informed about the purpose, procedures, potential benefits, and possible

discomforts associated with the study. Written informed consent was obtained before enrollment. Participation was voluntary, and participants were informed that they could withdraw from the study at any stage without affecting their routine medical care. Participant confidentiality was maintained throughout the study, and collected information was used only for research purposes. The interventions were non-invasive, and participants were monitored for any discomfort or adverse effects related to the use of the brace or splint.

3.Results

A total of 50 patients with clinically diagnosed lateral epicondylitis were included in the study. Twenty-five participants were allocated to the counterforce bracing group (Group A) and 25 to the wrist extension splinting group (Group B). The outcomes evaluated were pain intensity, grip strength, functional disability, and patient satisfaction. Baseline characteristics were comparable between the two groups. Both interventions were associated with significant improvement in pain, grip strength, and functional disability following treatment. The magnitude of improvement in functional disability and patient satisfaction was greater in the counterforce bracing group, whereas the between-group difference in pain reduction and grip-strength improvement did not reach statistical significance.

Table 1. Distribution of participants according to demographic characteristics

Variable	**Counterforce bracing (n=25)**	**Wrist extension splinting (n=25)**	**Total (N=50)**	**p-value**
Age group				0.917
18–30 years	3 (12.0%)	3 (12.0%)	6 (12.0%)	
31–40 years	7 (28.0%)	6 (24.0%)	13 (26.0%)	
41–50 years	9 (36.0%)	10 (40.0%)	19 (38.0%)	
>50 years	6 (24.0%)	6 (24.0%)	12 (24.0%)	
Male	14 (56.0%)	15 (60.0%)	29 (58.0%)	0.771
Female	11 (44.0%)	10 (40.0%)	21 (42.0%)	
Right-sided involvement	15 (60.0%)	14 (56.0%)	29 (58.0%)	0.771
Left-sided involvement	10 (40.0%)	11 (44.0%)	21 (42.0%)	

The mean age of participants was **44.2 ± 8.9 years**, with similar age distribution between the two groups. Males constituted 58.0% of the total study population and females 42.0%. Right-sided involvement was slightly more common than left-sided involvement. None of the baseline demographic variables showed a statistically significant difference between the groups ($p>0.05$), indicating that the groups were comparable before intervention.

Table 2. Distribution according to duration of symptoms

Duration of symptoms	Counterforce bracing (n=25)	Wrist extension splinting (n=25)	Total (N=50)	p-value
<3 months	6 (24.0%)	5 (20.0%)	11 (22.0%)	0.874
3–6 months	11 (44.0%)	12 (48.0%)	23 (46.0%)	
>6 months	8 (32.0%)	8 (32.0%)	16 (32.0%)	
Mean duration (months)	**5.9 ± 2.7**	**6.1 ± 2.9**	**6.0 ± 2.8**	**0.802**

Most participants had symptoms for **3–6 months (46.0%)**. One-third had symptoms persisting for more than 6 months. The mean duration was 5.9 ± 2.7 months in the counterforce bracing group and 6.1 ± 2.9 months in the wrist extension splinting group. The difference was not statistically significant (p=0.802), demonstrating comparable symptom duration at baseline.

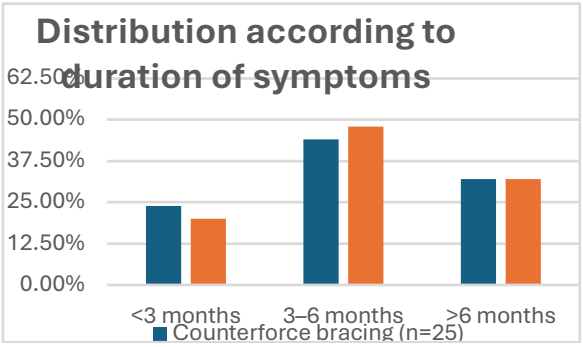


Table 3. Comparison of pain scores before and after intervention

Group	Baseline pain score	Post-intervention pain score	Mean reduction	p-value
Counterforce bracing (n=25)	6.45 ± 0.93	4.07 ± 1.46	2.38 ± 0.86	<0.001
Wrist extension splinting (n=25)	6.33 ± 1.04	4.15 ± 1.32	2.18 ± 0.79	<0.001

Pain intensity decreased substantially following both interventions. In the counterforce bracing group, the mean pain score decreased from 6.45 ± 0.93 to 4.07 ± 1.46, representing a mean reduction of 2.38 points. In the wrist extension splinting group, pain decreased from 6.33 ± 1.04 to 4.15 ± 1.32, with a mean reduction of 2.18 points. The reduction was statistically significant within both groups (p<0.001).

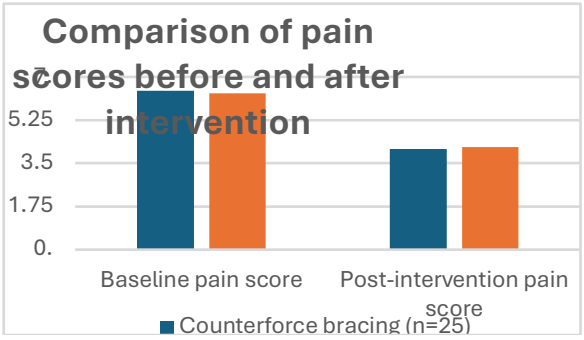


Table 4. Between-group comparison of reduction in pain score

Pain outcome	Counterforce bracing	Wrist extension splinting	Between-group p-value
Baseline score	6.45 ± 0.93	6.33 ± 1.04	0.673
Post-intervention score	4.07 ± 1.46	4.15 ± 1.32	0.842
Mean reduction	**2.38 ± 0.86**	**2.18 ± 0.79**	**0.459**

Although the mean reduction in pain was slightly greater with counterforce bracing than with wrist extension splinting, the difference between the two groups was **not statistically significant (p=0.459)**. Thus, both interventions appeared to provide comparable pain relief.

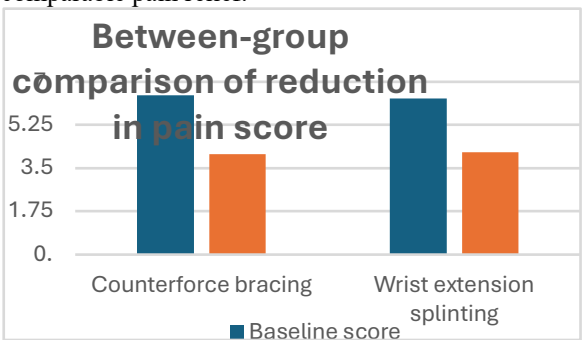


Table 5. Comparison of grip strength before and after intervention

Group	Baseline grip strength (kg)	Post-intervention grip strength (kg)	Mean increase	p-value
Counterforce bracing	18.75 ± 2.68	23.09 ± 2.78	4.34 ± 1.93	<0.001
Wrist extension splinting	19.01 ± 3.26	22.43 ± 4.20	3.42 ± 2.27	<0.001

Grip strength improved significantly in both groups. Participants receiving counterforce bracing demonstrated an increase from 18.75 ± 2.68 kg to 23.09 ± 2.78 kg, while those receiving wrist extension splinting improved from 19.01 ± 3.26 kg to 22.43 ± 4.20 kg. The within-group improvement was statistically significant in both groups (p<0.001).

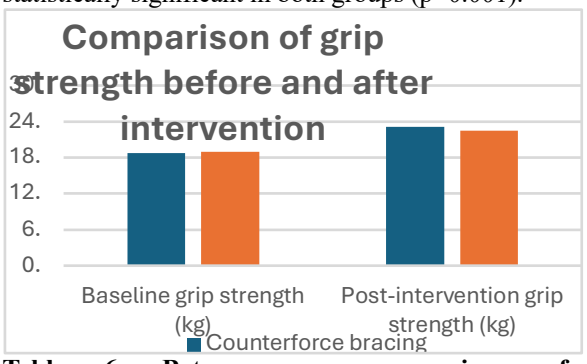


Table 6. Between-group comparison of improvement in grip strength

Grip-strength outcome	Counterforce bracing	Wrist extension splinting	p-value

Baseline	18.75 ± 2.68	19.01 ± 3.26	0.750
Post-intervention	23.09 ± 2.78	22.43 ± 4.20	0.512
Mean improvement	**4.34 ± 1.93**	**3.42 ± 2.27**	**0.097**

The counterforce bracing group demonstrated a greater mean improvement in grip strength than the wrist extension splinting group (4.34 kg versus 3.42 kg). However, the between-group difference did not reach statistical significance (**p=0.097**). Both interventions therefore demonstrated beneficial effects on grip strength.

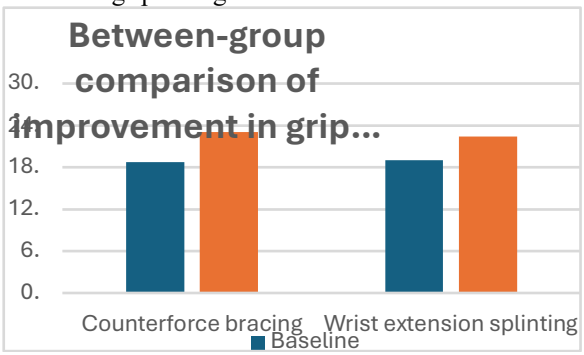


Table 7. Comparison of functional disability scores before and after intervention

Group	Baseline disability score	Post-intervention disability score	Mean reduction	p-value
Counterforce bracing	40.88 ± 6.60	23.64 ± 6.48	17.24 ± 5.21	<0.001
Wrist extension splinting	42.25 ± 6.10	29.71 ± 6.82	12.54 ± 5.04	<0.001

Functional disability improved significantly following both interventions. The counterforce bracing group demonstrated a reduction in disability score from 40.88 ± 6.60 to 23.64 ± 6.48, whereas the wrist extension splinting group showed a reduction from 42.25 ± 6.10 to 29.71 ± **6.82**. Both improvements were statistically significant ($p<0.001$), with a numerically greater improvement observed in the counterforce bracing group.

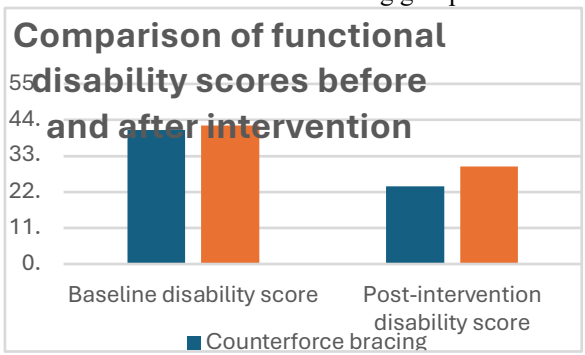


Table 8. Between-group comparison of improvement in functional disability

Functional outcome	Counterforce bracing	Wrist extension splinting	p-value
Baseline disability score	40.88 ± 6.60	42.25 ± 6.10	0.459
Post-intervention score	23.64 ± 6.48	29.71 ± 6.82	0.002

Mean reduction	**17.24 ± 5.21**	**12.54 ± 5.04**	**0.002**

A statistically significant difference was observed between the groups in functional improvement. The mean reduction in disability score was 17.24 ± 5.21 points in the counterforce bracing group compared with 12.54 ± 5.04 points in the wrist extension splinting group. The difference was statistically significant (p=0.002), indicating greater improvement in functional disability with counterforce bracing.

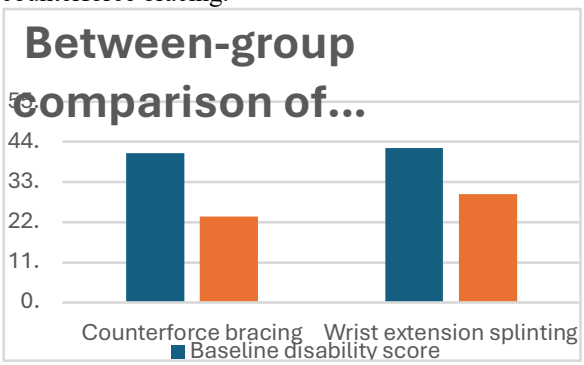
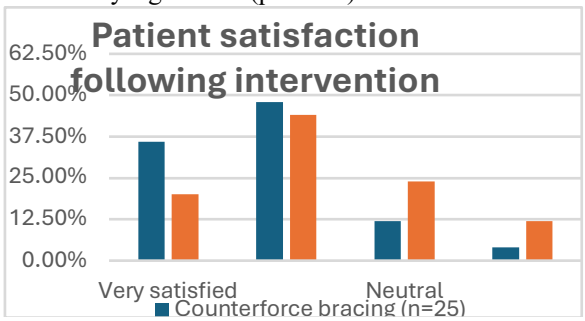


Table 9. Patient satisfaction following intervention

Satisfaction level	**Counterforce bracing (n=25)**	**Wrist extension splinting (n=25)**	**Total**	**p-value**
Very satisfied	9 (36.0%)	5 (20.0%)	14 (28.0%)	0.041
Satisfied	12 (48.0%)	11 (44.0%)	23 (46.0%)	
Neutral	3 (12.0%)	6 (24.0%)	9 (18.0%)	
Dissatisfied	1 (4.0%)	3 (12.0%)	4 (8.0%)	
Mean satisfaction score	**4.14 ± 0.63**	**3.65 ± 0.68**	**3.90 ± 0.67**	**0.010**

Patient satisfaction was higher among participants treated with counterforce bracing. A total of 84.0% of participants in this group reported being satisfied or very satisfied compared with 64.0% in the wrist extension splinting group. The mean satisfaction score was also higher in the counterforce group (4.14 ± 0.63 versus 3.65 ± 0.68), and the difference was statistically significant (p=0.010).



4.Discussion

The present comparative study evaluated the effectiveness of counterforce bracing and wrist extension splinting in patients with lateral epicondylitis, with particular emphasis on pain, grip strength, functional disability, and patient satisfaction. In the present study, both interventions produced significant within-group improvement in pain and grip strength, while functional disability also improved significantly in both groups. However, counterforce bracing demonstrated a significantly greater improvement in functional disability and significantly higher patient satisfaction than wrist extension splinting. The reduction in pain was slightly greater with counterforce bracing, although the between-group difference was not statistically significant. Similarly, improvement in grip strength was numerically greater in the counterforce group, but this difference did not reach statistical significance. These findings indicate that both external supports may provide clinical benefit, while counterforce bracing may offer an advantage particularly in functional recovery and patient acceptability.

The findings are consistent with the broader evidence summarized by Vellilappily in 2017, [11] reviewed the effectiveness of counterforce orthoses in lateral epicondylitis using evidence from PubMed, Ovid, and ProQuest. The review examined studies involving single orthotic devices, combinations of orthoses, orthosis with local steroid injection, and comparisons between different orthotic devices. The review concluded that orthotic devices could be considered an evidence-based treatment strategy either alone or in combination with routine physiotherapy, while also emphasizing the need for further high-quality clinical trials. The present study contributes to this evidence by directly comparing two commonly used external supports and by evaluating not only pain but also grip strength, functional disability, and patient satisfaction. The significant improvement observed with both interventions in the present study supports the concept that orthotic management can have a useful role in conservative treatment of lateral epicondylitis.

The present pain findings should also be interpreted in relation to the systematic review and meta-analysis by Shahabi et al. (2020) [12]. Their review included 17 studies involving 1,145 participants and specifically investigated the effects of counterforce braces on pain, with grip strength considered as a secondary outcome. They reported a small short-term improvement in pain with counterforce bracing compared with physiotherapy, with a standardized mean difference of −0.02 (95% CI: −0.85 to 0.80), while a moderate-to-large improvement was observed in participants aged 45 years or younger, with an SMD of −0.86 (95% CI: −2.45 to 0.72). Conversely, over the long term, physiotherapy, wrist splinting, and laser therapy demonstrated better effects on pain than counterforce bracing, with an SMD of 1.17 (95% CI: −0.00 to 2.34) for physiotherapy and 0.35 (95% CI: −0.07 to 0.76) for wrist splinting. In the present study, pain decreased significantly in both groups, from 6.45 ± 0.93 to 4.07 ± 1.46 with counterforce bracing and from 6.33 ± 1.04 to 4.15 ± 1.32 with wrist extension splinting. Although the numerical reduction was greater with counterforce bracing, the between-group difference was not significant (p=0.459). Thus, the present findings are compatible with the observation that counterforce bracing can provide symptomatic benefit, while they also demonstrate that wrist splinting can produce a comparable reduction in pain.

An important comparison can be made with the study by Garg et al. (2010) [13], which directly compared a wrist extension splint with a counterforce forearm strap in patients with acute lateral epicondylitis. Forty-two patients involving 44 elbows received either a wrist extension splint or counterforce forearm strap and were assessed using the American Shoulder and Elbow Society (ASES) Elbow Assessment and Mayo Elbow Performance (MEP) scores at baseline and 6 weeks. The ASES-derived score improved by 16 points in the wrist extension splint group and by 13 points in the counterforce group, while MEP scores improved by 13 and 12 points, respectively. However, no significant difference was found between groups for either ASES (p=0.60) or MEP (p=0.63). Interestingly, pain relief within the ASES assessment was significantly better in the wrist extension splint group (p=0.027). In contrast, the present study demonstrated a slightly greater numerical reduction in pain with counterforce bracing, although without statistical significance. This difference may reflect variation in the study population, treatment protocol, outcome measures, and duration of intervention. Nevertheless, both studies support the overall usefulness of external supports while demonstrating that superiority of one support for pain outcomes is not consistently established.

The findings concerning grip strength can also be compared with the observations of Bisset et al. (2014), [14] investigated the immediate effectiveness of two different counterforce brace designs in 34 participants with lateral epicondylalgia. Their study assessed pain-free grip strength, pressure pain threshold, and wrist angle during gripping. Pain-free grip strength improved immediately by 17.2 N (95% CI: 7.5–26.8), while pressure pain threshold improved by 42.2 kPa (95% CI: 16.5–68.0). However, there was no significant difference between the two brace designs or the no-brace control condition for the assessed outcomes. In the present study, grip strength increased by 4.34 ± 1.93 kg in the counterforce group and by 3.42 ± 2.27 kg in the wrist extension splint group. Although the improvement was statistically significant within both groups, the difference between groups was not significant (p=0.097). Therefore, both studies suggest that external support may be associated with improvement in grip-related performance, but the available evidence does not establish a consistent superiority of one particular brace configuration.

Hoseini et al. (2025) [15] provided additional evidence regarding counterforce bracing by comparing it with kinesio tape and corticosteroid injection in 51 patients with lateral epicondylitis. Their outcomes included pain intensity, common extensor tendon thickness, grip strength, and functional status. They reported significant improvement in pain intensity and common extensor tendon thickness in all treatment groups at the second and fourth weeks. Functional status improved significantly in the counterforce brace and corticosteroid groups, whereas grip strength did not increase significantly in any of the treatment groups (p>0.05). Importantly, no treatment method was found to be superior to the others. The present study similarly demonstrated significant improvement in functional

disability with counterforce bracing and wrist extension splinting. However, unlike the findings reported by Hoseini et al., [15] grip strength improved significantly within both groups in the present study. This difference may be attributable to differences in intervention comparison, patient characteristics, assessment duration, or rehabilitation protocols. Nevertheless, the two studies consistently indicate that counterforce bracing can contribute to improvement in functional outcomes.

The significant improvement in functional disability observed in the present study is particularly noteworthy. The counterforce group showed a reduction in disability score of 17.24 ± 5.21 compared with 12.54 ± 5.04 in the wrist extension splint group, and the between-group difference was statistically significant (p=0.002). This suggests that although pain relief and grip-strength improvement were broadly comparable, counterforce bracing may have provided greater functional benefit in the studied population. The finding is partially compatible with Hoseini et al., [15] reported significant improvement in functional status in the counterforce brace group. It also complements the conclusions of Vellilappily, [11] whose review supported orthotic devices as part of conservative management and emphasized the potential value of combining orthotic treatment with physiotherapy.

Patient satisfaction was another important outcome in the present study and was significantly higher in the counterforce bracing group. The mean satisfaction score was 4.14 ± 0.63 compared with 3.65 ± 0.68 in the wrist extension splinting group (p=0.010), with 84.0% of participants in the counterforce group reporting that they were satisfied or very satisfied. Although the studies provided for comparison did not directly report patient satisfaction as a principal outcome, Bisset et al.[14] emphasized that selection between counterforce brace designs may reasonably be influenced by patient preference, comfort, and cost. This observation is relevant to the present finding because treatment effectiveness in a chronic musculoskeletal condition depends not only on clinical improvement but also on the acceptability and practicality of the intervention for routine use. The findings of the present study suggest that both counterforce bracing and wrist extension splinting are useful conservative options for lateral epicondylitis. The significant improvement in pain, grip strength, and functional disability within both groups supports the use of external supports as part of conservative management. However, the significant superiority of counterforce bracing for functional disability and patient satisfaction suggests a potential advantage of this approach when the primary objective is restoration of functional activity and treatment acceptability. At the same time, the absence of significant between-group differences for pain and grip strength indicates that the choice between the two supports should not be based exclusively on these outcomes. The available literature similarly demonstrates variability in outcomes according to treatment duration, age, intervention type, and outcome measure [1–5]. Further well-designed comparative trials with larger sample sizes and standardized follow-up periods would therefore be useful to establish whether the functional advantage of counterforce bracing observed in the present study is reproducible.

Conclusion

The present study concluded that both counterforce bracing and wrist extension splinting were effective conservative interventions for patients with lateral epicondylitis, producing significant improvements in pain, grip strength, and functional disability. Although pain relief and improvement in grip strength were comparable between the two groups, counterforce bracing demonstrated significantly greater improvement in functional disability and higher patient satisfaction. Therefore, counterforce bracing may be considered a preferable external support for improving functional recovery and treatment acceptability in patients with lateral epicondylitis, while wrist extension splinting remains an effective alternative for symptomatic management.

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