**Garg R, Adamson GJ, Dawson PA, and et al. A prospective randomized study comparing a forearm strap brace versus a wrist splint for the treatment of lateral epicondylitis. *J Shoulder Elbow Surg* 2010; 19: 508-512.**

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**Reviewer:** Linda Metzger 3-9-16

**Design:** Prospective randomized controlled trial

**Objective:** To compare the clinical outcome and effectiveness of a wrist splint with a forearm counterforce strap brace for the management of acute lateral epicondylitis.

**Summary of Results:**

* A total of 42 participants (44 elbows) were divided into 2 treatment groups: 1) wrist extension splint, and 2) a forearm counterforce strap brace.
* The results of this study demonstrated statistically significant short-term improvement of both clinical outcomes in both groups, but no significant difference in improvements between groups at 6 weeks post-treatment. The total ASES and MEP scores were not significantly different between groups.
* It appears that the wrist extension splint does not improve the efficacy of the conventional forearm brace in relieving pain or improving function.

**Reasons not to cite as evidence:**

* Clinical outcomes were measured using the American Shoulder and Elbow Society (ASES) Elbow Assessment Form and the Mayo Elbow Performance (MEP). It is unclear which outcome is the primary outcome, since neither was designated as such.
* In evaluating the individual components of the total ASES score which were clearly not primary outcome measures, it was found that pain relief was significantly better with the extension splint group. Thus, the authors concluded that the wrist extension splint allows a greater degree of pain relief than does the forearm strap brace for patients with lateral epicondylitis. This represents selective outcome reporting by the authors, since the main results of the study as were measured using the total scores from the ASES and the MEP showed no difference in clinical outcomes between the 2 groups.
* A total of 70 patients met the study criteria. Twenty-five were lost to follow-up and 3 did not complete outcome measurement forms. This represents a 40% drop out rate which is unacceptable.
* The randomization process was not described at all. How were the participants assigned to groups? Omitting this information is a major error that fails the test of evidence.
* No baseline data was provided for either clinical outcomes or demographics. It is unknown if any baseline imbalances were present.
* Since occasional NSAID use was allowed if pain was intolerable, this potentially adds a confounding variable, although it can be assumed that each group had equal amounts of NSAID usage.
* This study only evaluated the short-term effects of the 2 orthotics, with no longer-term follow-up. Since lateral epicondylitis is usually a long term condition, it would seem clinically relevant to evaluate effectiveness of the orthotics in the long term.
* The study lacked a control group which received no treatment. Since the effectiveness of the conventional forearm brace is in question, it does not serve as an adequate control.
* Assessor blinding was not addressed, so if blinding did not occur, this could certainly introduce both performance and detection bias.
* A post-hoc power analysis was performed to determine if sufficient sample size was obtained to achieve 80% power to detect a 20% difference in mean. It is unknown if an adequate sample size was achieved. The study may have been underpowered to find an effect. This represents poor study planning.
* The wrist extension splint may not be available or readily used in this area.

**Assessment:**

* There is an absence of evidence that any particular orthotic design or forearm brace or splint differ in their effectiveness in treating people with lateral epicondylitis.