

CLINICAL OVERVIEW

MANUFACTURED BRACE MODALITIES FOR ELBOW STIFFNESS

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Multiple surgical and nonsurgical treatment options exist for patients with elbow stiffness. Many nonsurgical mobilization bracing options have been implemented to increase elbow range of motion. Three of the main bracing options are turnbuckle, static progressive stretch (SPS), and dynamic bracing. The purpose of this study was to review the current literature on turnbuckle, SPS, and dynamic bracing to provide information for practitioners and patients regarding which brace is more appropriate to use for elbow stiffness. Specifically, the authors compared the protocol and duration of splint use and changes in range of motion (ROM) outcomes between SPS and dynamic brace cohorts. A search of PubMed yielded 8 studies meeting inclusion criteria. Overall, although all 3 bracing options are available for patients, these studies found that, based on the evaluated metrics, the SPS brace was a markedly superior option for patients with elbow stiffness. The time required to wear the SPS brace was 13 times less than that for the turnbuckle and 5 times less than that for the dynamic devices. Additionally, the high failure rate (10%) and low success rate (29%) of the dynamic brace, compared with the 63% regaining of functional range of motion in the SPS group, further highlight the benefits of the SPS brace.



METHODS

- 50 studies published on turnbuckle, SPS and dynamic bracing we identified via a PubMed search.
- Inclusion criteria applied were randomized controlled trials, retrospective series with reported follow-up outcomes, studies that relied primarily on a brace to improve patient outcomes versus surgeries or physical therapies, and those written in English.
- Studies that focused on individually fabricated braces were excluded.
- 8 studies met inclusion / exclusion criteria for final analysis (Tables 1-2).
- Authors compared splint use protocols, duration of use and changes in ROM outcomes between turnbuckle, SPS and dynamic brace cohorts.

RESULTS

- Turnbuckle brace studies reported protocols requiring 15 to 20 hours per day wear time, for an average duration of 5 months.
- SPS brace studies reported a generally accepted protocol of three 30 - minute sessions per day, for an average duration of 3 months.
- Dynamic brace data reported protocols requiring 6 to 8 hours per day wear time.
- 63% of SPS bracing patients achieved functional ROM.
- 29% of Dynamic bracing patients achieved functional ROM.
- 10% of Dynamic bracing patients failed treatment due to pain with use.

CONCLUSIONS

- Authors found benefits to the use of all bracing methods.
- Studies illustrate a major advantage in favor of SPS bracing due to shorter treatment time, user friendly protocol, and improved outcomes.
- SPS bracing is approximately 470% more time efficient than dynamic bracing.
- SPS bracing provided significantly better functional outcomes over dynamic bracing.



Full Study Available

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