Clinical effectiveness of post-operative splinting after surgical release of Dupuytren's contracture: a systematic review

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CRD summary
The authors concluded that there was insufficient evidence from a small number of low quality studies to determine the effectiveness of splints following Dupuytren's contracture surgery and that further research was required. The authors' conclusions appeared to reflect the limited evidence presented and were likely to be reliable.

Authors' objectives
To evaluate the effectiveness of post-operative splinting after surgical release of Dupuytren's contracture (DC) of the hand.

Searching
MEDLINE, AMED, CINAHL and EMBASE were searched from inception to October 2007 for studies reported in English. Search terms were reported. In addition, reference lists of eligible studies and contents of three specified journals (1990 to date) were screened.

Study selection
Prospective or retrospective experimental, quasi-experimental or observational studies were eligible if they evaluated the effectiveness of static or dynamic splints worn day and/or night for at least six weeks post DC hand surgery. Studies had to assess individual joint or composite finger range of motion or hand function.

The included studies evaluated dynamic splinting and static splinting and compared two positions in static splints. All of the studies assessed metacarpophalangeal or proximal interphalangeal joint (PIPJ) range of motion. The mean duration of follow-up ranged from nine weeks to 2 years.

The authors stated neither how papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
Two reviewers independently assessed validity using the 24 criteria described by Mc Dermid. Discrepancies were resolved through consensus. Validity items were related to background and study design, participants, intervention, outcomes, analysis and recommendations. The maximum possible quality score was 48 points.

Data extraction
The authors stated neither how data were extracted for the review nor how many reviewers performed the data extraction. Where possible, percentages or mean values of outcome measures were presented in tables.

Methods of synthesis
The studies were combined in a narrative synthesis.

Results of the review
Four studies were included (n=388). These comprised one non-randomised controlled study (n=69), one prospective uncontrolled observational study (n=20), one retrospective case review (n=31) and one retrospective case review combined with a prospective controlled trial (n=268). Studies were of low quality with scores ranging from 17 to 22 out of 48. Methodological flaws included lack of randomisation, small sample size and inadequate reporting of results data.

Two studies with different designs evaluated dynamic splints and reported different outcomes. One reported an increased number of patients with PIPJ contracture among those who complied with splint wear and the other reported greater PIPJ extension in compliant compared to non compliant splint wear patients.
Two studies evaluated static splints. One reported that function was significantly better in patients not prescribed a night splint compared to those who had been prescribed a night splint. The other reported no difference in the range of motion between tension applied by splinting versus no tension group, but reported fewer therapy visits over a shorter time period with fewer scar and flare symptoms in the group with no tension.

Authors' conclusions
There was insufficient evidence from a small number of low-quality studies to determine the effectiveness of splints following Dupuytren's contracture (DC) surgery. Further research was required.

CRD commentary
The review question was clearly stated. Inclusion criteria were specified for intervention, participants and outcomes; criteria for study design were appropriately broad. Several relevant sources were searched, but no attempts were made to minimise publication bias. No foreign language papers were found. Appropriate methods were used to minimise reviewer error and bias during the assessment of validity, but it was not clear whether similar steps were taken in study selection or data extraction. Validity was assessed and the methodological limitations of the studies were discussed. In view of the diversity among studies, a narrative synthesis was appropriate. The review had limitations in reporting of review methods, but the authors' conclusions appeared to reflect the limited evidence presented and seemed likely to be reliable. Recommendations about research appeared justified.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that adequately powered randomised controlled trials were required to evaluate the short- and long-term effects of different types of splints following DC surgery and the influence of duration of wear and patient compliance. There was also a need to determine the most appropriate primary and secondary outcomes and the duration of follow-up.

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