The effectiveness of pressure garment therapy for the prevention of abnormal scarring after burn injury: a meta-analysis
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CRD summary
This review aimed to assess the effectiveness of pressure garment therapy for the prevention of abnormal scarring after burn injury. The authors concluded that the beneficial effects of pressure garment therapy remained unproven, while the potential morbidity and cost were not insignificant. These conclusions appear to be reliable.

Authors’ objectives
To assess the effectiveness of pressure garment therapy for the prevention of abnormal scarring after burn injury.

Searching
The Cochrane Wounds Group and Cochrane Skin Group Specialised Trials Registers were searched alongside the following databases: MEDLINE (1966-2006), EMBASE (1988-2006), CINAHL (1982-2006), PEDro, Cochrane Central Register of Controlled Trials, Web of Science and American College of Physicians (APC) Journal Club (1991-2006). Search terms were reported. Additional searches were conducted of relevant websites, conference proceedings and reference lists of retrieved studies. Garment manufacturers and primary study authors were also contacted to identify any further published or unpublished research. The searches were not restricted by language or publication status.

Study selection
Randomised controlled trials (RCTs) assessing the effectiveness of pressure garment therapy compared to control or no treatment in children or adults with burns were eligible for inclusion in the review. Included RCTs used either within-patient or between-patient study designs, with low pressure garments or no garment as control. The primary review outcome was any validated measure global scar appearance. Secondary outcomes included scar height, pigmentation, vascularity, pliability and colour.

Where reported, patients had a mean age range from 6.6 to 43.3 years and the mean burn size ranged from 8.5% to 48.3% of the total body surface area.

Two reviewers independently selected studies for inclusion in the review. It is unclear how any disagreements were resolved.

Assessment of study quality
Two reviewers independently assessed study validity using the Jadad and Schultz scales, which together evaluated reporting of randomisation, blinding, withdrawals, and concealment of allocation. It is unclear how any disagreements were resolved.

Data extraction
Mean difference effect sizes were calculated for each of the outcomes of interest. Two reviewers independently extracted the data.

Methods of synthesis
For studies using the same outcome measure, effect sizes were pooled using weighted mean differences with corresponding 95% confidence intervals (CI). Where studies used different measures for the same outcome, effect sizes were pooled as standardised mean differences using a fixed-effects model. Statistical heterogeneity was assessed using the I² statistic. Where heterogeneity was substantial studies were combined in a narrative synthesis.

Results of the review
A total of six RCTs were included in the review (n=316 scars). Four of these RCTs scored 3 out of a possible 5 points
on the Jadad scale, whilst the remaining trials scored 1 and 4 points each. Concealment of allocation was unclear in all but one trial, in which it was considered adequate.

Meta-analysis of four RCTs (n=158) indicated a small but statistically significant decrease in scar height for the pressure garment therapy group (standardised mean difference -0.31 (95% CI: -0.63, 0.00), p=0.05). No statistically significant benefit of pressure garment therapy was observed for the primary outcome of global scar appearance, or the other secondary outcomes (vascularity, pliability, colour).

Only one trial reported on potential adverse events, finding no differences in pain or pruritis between pressure garment therapy and control groups.

Authors' conclusions
The beneficial effects of pressure garment therapy remain unproven, while the potential morbidity and cost are not insignificant.

CRD commentary
The review question was defined in terms of the participants, interventions, comparators and study designs of interest. The search covered a wide range of sources in an attempt to identify all the relevant literature, regardless of language or publication status. Study validity was assessed using established methods and informed the findings of the review. Included trials appear to have been synthesised using appropriate statistical methods and the authors attempted to minimise the potential for error and bias throughout the various review processes. Given the evidence presented, the authors' conclusions appear to be reliable.

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

Research: The authors state that there is a need for adequately powered studies of high methodological quality to determine the effectiveness and costs of pressure garment therapy, and that future research needs to more formally catalogue adverse events.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.