Authors’ objectives
To assess the efficacy and effectiveness of low-level laser therapy (LLLT) to assist wound healing.

Searching
The authors searched MEDLINE, HealthSTAR, EMBASE, CINAHL, Dissertation Abstracts and Current Contents from 1993 to August 1999, using a list of keywords that is listed in an appendix in the review. The Cochrane Library was also searched (with no date limits).

Study selection
Study designs of evaluations included in the review
The authors did not state the study design a priori. The included studies were randomised controlled clinical trials (RCTs), controlled clinical trials, non-controlled clinical trials and prospective comparative studies. Single case reports and animal studies were excluded.

Specific interventions included in the review
LLLT including: helium neon (HeNe) 632.8 nm, gallium arsenide (GaAs) 904 nm, gallium alluminium arsenide (GaAlAs) 820 and 830 nm. LLLT is also known as low-intensity and low-power therapy.

Participants included in the review
Patients undergoing treatment for leg ulcers were included.

Outcomes assessed in the review
Wound healing was assessed.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors evaluated the included studies according to a classification scheme by Jovell and Rubio that comments on quality of evidence (see Other Publications of Related Interest). The authors do not state how the papers were assessed for quality, or how many of the reviewers performed the quality assessment.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Data were extracted for the categories of study identification, study design and year of publication, patient characteristics and number of participants, therapy (intervention), outcomes and comments.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative discussion of the individual study results.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated.

Results of the review
Included studies were 2 RCTs with 39 participants, 2 controlled clinical trials with 40 participants, and 2 non-controlled clinical trials with 62 participants. A further 4 RCTs were identified from the Cochrane Wound Group Trials Register; these are discussed in the review but not included in the tables of data extracted.

In the 6 studies found in the literature search, 2 had the potential to provide a good level of scientific evidence, but the numbers of patients were small and/or variables were uncontrolled. None of these 6 studies established the efficacy of the technique.

In the Cochrane Wound Group Trials Register trials, only one small RCT suggested therapeutic benefit where a combination of laser and infra-red light led to an improvement in the healing rates of venous ulcers.

Authors’ conclusions
The authors state that the literature indicates that the efficacy of LLLT in this application is not established, and that there is no good scientific evidence to support its use.

CRD commentary
The authors have stated the research question but give only limited details of the studies to be included in the review. The literature search appears to be thorough and has searched several relevant databases. The quality of the included studies was assessed, but the authors have not reported how the articles were selected, or who performed the selection. It is also not stated who performed the quality assessment and data extraction.

The data extraction is reported in tables and discussed in the text of the review. The studies were combined in a narrative discussion. There was little discussion about heterogeneity apart from differences in treatment approach, which made comparisons impossible, and no application of the quality assessment in the discussion. The conclusions stated by the authors appear to follow from the results, but the review should be viewed with caution because of the limitations in the review process.

Implications of the review for practice and research
Practice: The authors state that other possibly more promising alternative therapies should be considered as adjunct therapies to conventional wound healing practices.

Research: The authors state that any local use of LLLT in this application should be supported by empirical data from good quality studies of its efficacy and effectiveness, which are lacking at this time.

Bibliographic details

Original Paper URL

Other publications of related interest

Indexing Status
Subject indexing assigned by CRD
MeSH
Lasers /therapeutic use; Wound Healing /radiation effects; Wounds and Injuries /radiotherapy

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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.