Authors' objectives
To systematically review articles examining the effect of massage on relaxation, comfort and sleep in acute and critical care settings.

Searching
MEDLINE, CINAHL and PsycINFO were searched from January 1980 to April 1999 for full-length articles, using the search terms 'massage', 'massage and sleep' and 'back massage'.

Study selection
Study designs of evaluations included in the review
Any relevant original research, systematic reviews or meta-analyses were included in this review.

Specific interventions included in the review
Back massage. Studies that evaluated the effect of back massage on pain, relaxation and sleep were eligible for inclusion. The interventions in the included studies varied in the type of massage, site of massage and duration; one study involved an aromatherapy massage group. These were compared with the following: undisturbed rest; exposure to conversation with no back massage; support in bed in Sims position; teaching session on relaxation and a 7.5 minute audiotape at bedtime; routine nursing care; sham transcutaneous electrical nerve stimulation; and no intervention.

Participants included in the review
Patients in acute or critical care. These included: patients with acute myocardial infarction; hospitalised cancer patients; hospitalised child and adolescent psychiatric patients; burns patients; chronic fatigue syndrome patients; volunteer adults; adult psychiatric out-patients; adult fibromyalgia syndrome patients; surgical patients; hospice and home care patients.

Outcomes assessed in the review
The main outcomes of interest were pain, relaxation and sleep. The outcomes reported in the included articles included: heart rate; blood-pressure; electromyogram; skin conductance; skin temperature; mood ratings; anxiety and depression scores; cortisol levels; and self-report measures of relaxation.

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
Articles were assigned levels according to research methods: meta-analyses were categorised as level V, whilst and systematic reviews as level IV. Experimental studies were classified as level III if they met the following three criteria: random assignment to group, use of a control group, and application of a treatment condition. If one of these criteria was not met, or a time-series design, was used, the study was categorised as level II. Single-group pre-test post-test pre-experimental designs, in which patients served as their own controls, were level I. A validity assessment of the methodological aspects of study design was not carried out. The studies were classified according to the level of evidence which they provided. It was unclear how many reviewers carried out this process.

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 on the following: the author(s), year, setting, sample, intervention, results, and level of evidence and study design.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken with the studies grouped by outcome, i.e. relaxation, pain or sleep.

How were differences between studies investigated?
Differences between the studies were discussed narratively, with details of the individual studies presented in tabular format.

Results of the review
Twenty-two articles were included in the review: 1 meta-analysis, 2 systematic literature reviews, and 19 original research studies (n=802). Of the 19 original research studies, 10 were level III, 6 were level II and 3 were level I.

The most consistent effect of massage was a reduction in anxiety. Eight of 10 of the original research studies reported that massage significantly decreased anxiety or perception of tension. Seven out of 10 studies found that massage produced physiologic relaxation, as indicated by significant changes in the expected direction in one or more physiologic indicators. In the 3 studies in which the effect of massage on discomfort was investigated, it was found to be effective in reducing pain. The effect of massage on sleep was only examined in 3 studies. However, the methods for measuring sleep were unclear in 2 of the studies, and the results were inconclusive in the third.

Authors' conclusions
Massage is an effective treatment for promoting relaxation and reducing pain, which advance practice nurses can prescribe or provide along with conventional medical treatment regimens. Massage may also be an effective treatment for sleep disturbances related to anxiety and pain, but further research is needed to test its efficacy.

CRD commentary
This was a reasonable quality review in terms of the methodological rigour and reporting. The inclusion criteria were stated, but it was unclear how many reviewers applied these criteria. Three databases were searched and the search terms and dates were given. However, the authors did not report whether any other retrieval methods, e.g. the following-up of references from retrieved papers and handsearching, were conducted. Relevant details of the included studies were tabulated, and the narrative summary seems to have been appropriate for the group of included papers. Though some study characteristics relating to validity were addressed by assigning 'levels' to each study, this approach is not equivalent to a systematic assessment of validity according to predefined criteria.

The authors' conclusions do seem to follow from the reported results.

Implications of the review for practice and research
Practice: The authors state that massage is an effective treatment for promoting relaxation and reducing pain, which advance practice nurses can prescribe or provide along with conventional medical treatment regimens. Before initiating massage, the nurse should assess the patient's individual preferences and responsiveness to touch and massage. Cultural and social feelings towards massage should be considered, as well as the patient's ability to communicate concerns or express unwillingness to receive massage therapy.

Research: The authors state that further research is needed to investigate the effect of massage on discomfort and promoting sleep.

Funding

Database of Abstracts of Reviews of Effects (DARE)
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**Bibliographic details**

**PubMedID**
11040555

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Acute Disease /nursing; Anxiety /prevention & control; Critical Care /methods /psychology; Holistic Nursing /methods; Humans; Massage /methods /nursing /psychology; Pain /prevention & control; Treatment Outcome

**AccessionNumber**
12000005134

**Date bibliographic record published**
31/07/2002

**Date abstract record published**
31/07/2002

**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.