Authors' objectives
To review the effectiveness of five non-pharmacologic strategies for managing cancer pain.

Searching
The authors searched the electronic databases of MEDLINE (1966 to June 1997), CINAHL (1982 to June 1997) and PsycLIT (1980 to June 1997) using the following search terms, textwords and exploded terms: 'acupuncture', 'biofeedback', 'hypnosis', 'massage', 'therapeutic touch', 'pain', and 'cancer' (or 'neoplasms'). The authors also searched the reference lists of retrieved articles and their own personal records for additional relevant studies.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs).

Specific interventions included in the review
Non-pharmacologic strategies for pain management including acupuncture (either the application of heat to the skin (moxibustion) or the insertion of fine solid needles into subcutaneous and muscular tissue in regions known as meridians), massage therapy (systematic stroking, kneading and working of any body structures), hypnosis, therapeutic touch and biofeedback.

Participants included in the review
Male and female cancer patients undergoing bone marrow transplantation, bone marrow aspiration, or lumbar puncture treatments. The age of study participants ranged from 6 to 78 years of age.

Outcomes assessed in the review
Pain and anxiety. Pain was measured using 10-point scales of pain sensation, frequency and duration, and of suffering, Brief Symptom Inventory (BSI), Sickness Impact Profile (SIP), oral pain Visual Analogue Scale (VAS), nausea VAS, opioid intake, oral mucositis severity, Symptom Checklist (SCL-90R), post-treatment evaluation, and a 5-point scale of pain and anxiety. Anxiety (fear) was measured using Procedural Behaviour Rating Scale, nurse-rated anxiety rating, pain and fear assessment, and pulse and temperature readings.

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 authors performed the selection.

Assessment of study quality
The authors state that the quality of the literature was evaluated using established criteria developed by Detsky and colleagues (see Other Publications of Related Interest). The 5-category, 14-question rating scale assessed randomisation, bias in treatment assignment, criteria for measuring outcomes, blinding, inclusion/exclusion criteria, number of excluded patients, sufficient description of therapeutic regimen for control and treatment groups, and quality of the statistical analysis. The authors do not state how the papers were assessed for quality, or how many of the authors performed the quality assessment.

Data extraction
The authors do not state who, or how many of the reviewers, performed the data extraction. Data were extracted for the categories of study identification, study design, sample characteristics, outcome measures, results and comments.
Methods of synthesis
How were the studies combined?
The studies were combined using a qualitative narrative synthesis.

How were differences between studies investigated?
Not stated formally, however the authors discussed methodological limitations of each study.

Results of the review
One RCT for acupuncture (16 patients), 1 RCT for massage therapy (28 patients), and 6 RCTs for hypnosis (282 patients). There were no trials for therapeutic touch or biofeedback.

The one trial on acupuncture did not offer any reliable conclusions. One RCT on massage therapy found that the men reported a significant decrease in the pain intensity immediately after the massage session ($F(5,13) = 8.24, p = 0.01$) and the women receiving massage showed no difference. The amount of medication given 1 to 4 hours before the intervention was not significantly associated with pain levels immediately after or 1 hour after the massage session, but it was associated with a decrease in pain 2 hours after the intervention. This medication-related decrease was significant for women ($F(3,7) = 29.37, p = 0.002$) but not for men ($F(3,15) = 0.03, p = 0.87$).

The 6 studies of hypnosis found that there was a significant reduction in pain in the intervention groups. The pediatric studies on hypnosis found that anxiety was significantly reduced for BMA patients and was equally effective in both groups for LP patients in one study and that there were significant differences in both groups for reduction in fear in the second study. The authors stated that the results suggested that there is much support for the use of hypnosis in the management of cancer pain.

Authors’ conclusions
The authors state that because patients use a wide variety of non-pharmacologic strategies regardless of their effectiveness, clinicians need to be familiar with available research and able to discuss those strategies for which the evidence is strong, weak or non-existent.

CRD commentary
The authors have clearly stated their research question but not the inclusion and exclusion criteria. The literature search appears thorough but it is not clear whether the authors used any language restrictions in their search and may therefore have missed additional relevant studies. The quality of the included studies was formally assessed but the authors have not reported on how the articles were selected, or how many of the reviewers were involved in the data selection and extraction.

The data extraction is reported in tables and text and the narrative synthesis was appropriate because of the lack of quantitative data and heterogeneity between studies. There were no tests for heterogeneity but the authors have discussed several methodological and data limitations in the review.

The conclusions appear to follow from the results but, as the authors acknowledge, these should be viewed with caution because of the stated methodological limitations of the individual studies included in the review.

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

Research: The authors state that more research on the effectiveness of non-pharmacologic strategies for pain management is needed.

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Other publications of related interest

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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.