Relaxation techniques for acute pain management: a systematic review

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Authors' objectives
To document the effectiveness of relaxation techniques, when used alone for the management of acute pain, after surgery and during procedures.

Searching
The following databases were searched: MEDLINE from 1966 to March 1996; PsycLIT from 1974 to March 1996; CINAHL from 1982 to March 1996; and the Oxford Pain Relief Database from 1950 to 1994. Initial searches were conducted for publications in any language using the word 'relax' and variants of the word 'relaxation' as free-text search terms, including combinations of these words. Subsequent searches used a variety of free-text combinations of the terms 'imagery', 'hypnosis', 'visualisation' and 'cognitive therapy'. Additional reports were identified from the bibliographies of retrieved papers, published review articles, and textbooks. Unpublished studies were not actively sought.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs), published as full reports and reporting pain outcomes, were included. Studies with un undisclosed treatment allocation, or treatment groups of less than 10 participants, were excluded. Abstracts, review articles, and evaluations of laboratory experiments were not considered for inclusion.

Specific interventions included in the review
Evaluations of relaxation strategies used alone and not in combination with other interventions, such as cognitive behaviour therapy or imagery, were eligible. Relaxation techniques included the following: modified Jacobson method; Flaherty and Fitzpatrick jaw relaxation; relaxation tape; tape with structured breathing, muscle relaxation and pleasant imagery; progressive muscle relaxation with cognitive relaxation; pleasant memory, jaw relaxation and breathing techniques; and taped information and relaxation. The follow-up and treatment periods varied across the trials. The control regimens included no intervention, blank tape, routine or standard care, taped information, reading, and listening to music.

Participants included in the review
Patients undergoing fractured hip repair, removal of malignant skin lesions, major elective abdominal surgery, elective cholecystectomy, abdominal hysterectomy, and femoral angiography, were included.

Outcomes assessed in the review
The outcomes of pain sensation and pain distress were used. The most common instruments used to measure these were the McGill Pain Questionnaire, the Spielberger State-Trait Anxiety scale, and assessment of analgesic consumption.

How were decisions on the relevance of primary studies made?
Each study was read by both authors independently.

Assessment of study quality
The criteria used to assess validity were the description of randomisation and withdrawals. Studies were scored for methodological quality using a modified 3-item scale (see Other Publications of Related Interest no.1). Studies described as random were allocated one point, and a further point if the method of randomisation was given and was deemed appropriate (e.g. the use of random number tables). A further point was allocated for a description of the numbers of, and reasons for, withdrawals. Trials could therefore score a maximum of 3 points and a minimum of 1 point. Both authors independently rated all seven studies, and achieved complete agreement for the scores.
Data extraction
The following data were extracted from each study: the pain condition; the site of pain; the number of patients approached and the number who entered the study; the aims of the study and its design; pain outcomes; psychological outcomes; treatment groups; type of relaxation technique; frequency of its use; instructions given to patients; withdrawals; and adverse effects. Study interventions were considered to be effective if p-values of less than 0.05 were reported for pain and/or psychological outcomes. The authors of the included trials were not contacted for additional information.

Methods of synthesis
How were the studies combined?
The trials were combined in a narrative summary and tables were presented.

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

Results of the review
Seven RCTs were included (n=362, of whom 150 received relaxation). Six trials evaluated relaxation used after surgery, and the other study involved femoral angiography.

The methodological quality of the included trials was variable. Three trials reported statistically-significantly less pain sensation and/or pain distress in those who had relaxation. The remaining four studies did not demonstrate any differences between the treatments. Only one out of the five trials that assessed psychological outcomes reported any statistically-significant difference; those who received relaxation reported less anxiety compared with the other groups. No adverse events were reported in any trial for any of the treatment or control groups.

Authors' conclusions
If relaxation is used alone for acute pain, there is no evidence that it is harmful, and there is some weak support for its potential to reduce acute pain. However, many studies in this area suffered from methodological weaknesses and more well-designed RCTs are needed. Any use of this technique in the clinical area should be carefully and systematically evaluated.

CRD commentary
Generally, this was a well-conducted systematic review looking at the use of relaxation techniques to alleviate acute pain. Adequate details were provided for the research questions, trial selection, primary material, and the process of the review. A good level of detail was also provided for the search strategy. An attempt to identify unpublished literature may have helped identify additional studies. The method used to pool the data (descriptive) was appropriate, but more information on the methodological quality of the included trials would have been useful as the instrument used only covered two dimensions of study quality. However, the authors highlighted this issue in their discussion. The inclusion of different types of surgical patients made the results somewhat difficult to interpret. The authors' conclusions appear to follow on from the presented evidence, and they rightly draw attention to the need for further research in this area.

Implications of the review for practice and research
The authors stated that further research looking at the effectiveness of relaxation for acute pain should include RCTs with adequate randomisation, adequate size and well-defined samples, standard methods of relaxation, a clearly defined setting and reliable and valid outcomes, and take into account concomitant administration of analgesics. More work is needed to allow us to tailor relaxation to the individual.

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Other publications of related interest

This additional published commentary may also be of interest. Abbot NC. Relaxation techniques in pain relief: systematic reviews. FACT 1998;3:161-2.

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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.