Authors' objectives
To evaluate the effectiveness of relaxation techniques and music on post-operative pain.

Searching
MEDLINE Express was searched from 1966 to 1995, CINAHL (CD-ROM) from 1982 to 1995, and PsycLIT journal articles from 1971 to 1995. The keywords used were 'pain', 'postoperative', 'relaxation' and 'music'. In addition, recent reviews of relaxation and music were examined, and all volumes of the Journal of Music Therapy, were handsearched. Book chapters on the empirical bases for these nursing interventions were also searched.

Study selection
Study designs of evaluations included in the review
Randomised studies, non-randomised studies and pre-experimental with no control group were included.

Specific interventions included in the review
Music and relaxation techniques, such as jaw relaxation, rhythmic breathing, progressive relaxation and Benson's relaxation.

Participants included in the review
Adults who have undergone surgery to their torso were included.

Outcomes assessed in the review
Reported sensory pain, reported affective pain, reported univariate pain, and opioid intake were assessed.

How were decisions on the relevance of primary studies made?
The author read each study and recorded data on the survey instrument.

Assessment of study quality
All published research studies using relaxation techniques and/or music to reduce acute pain following surgery on the adult human torso were included in the review. A survey instrument was used to document a number of aspects of each study including: intervention technique; theoretical framework; surgical population; sample size; study design; use of randomisation; pre-test equivalence of groups; patient activity during testing; immediate post-test administration; control for analgesics; measures of pain; other controlled variables; statistical tests; and findings. The author read each study and recorded data on the survey instrument.

Data extraction
The author read each study and recorded data on the survey instrument.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative review and tables were presented. The frequencies and percentages were used to analyse the findings of each study.

How were differences between studies investigated?
The effectiveness data were tabulated according to the type of measurement used, i.e. reported sensory pain, reported affective pain, reported univariate pain, and opioid intake. The studies were also divided into those that were
randomised, non-randomised, or were pre-experimental studies that had no control group.

**Results of the review**
Twenty-one studies from 15 journals were included: 11 randomised studies (213 participants), 8 non-randomised (208 participants), and 2 with no control group (total number of participants unavailable).

Effectiveness in reported pain reduction was found for the following:

- 6 of the 12 studies in which reported sensory pain was measured;
- 10 of the 13 studies in which reported affective pain was measured;
- 4 of the 7 studies in which reported unidimensional pain was measured;
- all of the 4 studies in which observed pain was measured; and
- only 5 of the 15 studies in which opioid intake was measured.

This suggested that relaxation and music were effective in the majority of studies for affective pain, and for reported and observed unidimensional pain, but were equivocal for sensory pain and were ineffective in the majority of studies for opioid intake.

**Authors' conclusions**
Relaxation and music were effective in reducing affective and observed pain in the majority of studies, but they were often less effective in reducing sensory pain or opioid intake. However, the between-study differences in surgical procedures, experimental techniques, activities during testing, measurement of pain, and amount of practice made comparisons difficult. Furthermore, within studies, the problems of inadequate sample size, lack of random assignment, no assurance of pre-test equivalence, delayed post-test administration, and no control for opiates at the time of testing reduced the validity of the studies' conclusions. Randomised controlled studies of the types of relaxation and music that are most helpful to post-operative patients should be explored in various contexts.

**CRD commentary**
The review adequately stated its objectives, interventions, participants, outcomes, study designs, search strategy, validity and inclusion criteria, assessment of differences between the studies and results. The review lacked sufficient detail on the process by which the inclusion and validity criteria were applied, and the methods used to extract the data. In addition, although a validity assessment was undertaken, it was inadequate in the appraisal of the non-randomised studies where it is most needed. The results appear to accurately reflect the evidence presented.

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