Knowledge retention from pre-operative patient information
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Authors’ objectives
To present the best available evidence related to knowledge retention and/or correct performance of post-operative activities following pre-operative patient education.

Searching
CINAHL, MEDLINE, PsycLIT, Current Contents, the Cochrane Library, Expanded Academic ASAP, EMBASE, HealthSTAR and ERIC were searched. Additional searches of Dissertation Abstracts International (for unpublished studies) and the reference lists and bibliographies of all relevant articles were conducted. The search terms and dates were not reported.

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

Specific interventions included in the review
The education, instruction or teaching of pre-operative patients in either group or individual formats, at pre- or post-admission, using structured or unstructured programmes. This included written information, audiovisual aids, computer-assisted instruction and learning packages.

Participants included in the review
The participants were adults (at least 15 years age) of either gender in a hospital setting, who were there as in-patients or same-day surgical patients, and who received some form of information and/or instruction prior to an operative procedure.

Outcomes assessed in the review
The primary outcome measures related to the understanding of information in relation to the operative or post-operative period provided in the intervention. These included increased knowledge (increased understanding, decreased misconceptions and increased retention of knowledge), the ability to perform post-operative activities, and the time to teach skills.

How were decisions on the relevance of primary studies made?
The studies identified from the searches of the electronic databases were assessed for relevance, based on the information provided in the title, abstract and MeSH terms. The full reports of studies meeting the review’s inclusion criteria were retrieved. Studies identified from the reference list searches were assessed for relevance on the basis of the study title.

The authors do not state how many of the reviewers performed the selection, whether the reviewers were blinded to the results and/or source, or how any disagreements were resolved.

Assessment of study quality
The validity of the primary studies was assessed using a critical appraisal form of RCTs, which was developed on the basis of the work of the Cochrane Collaboration and the NHS Centre for Reviews and Dissemination (see Other Publications of Related Interest nos.1-2). The authors do not state who performed the validity assessment, whether the assessment was independent, or if the reviewers were blinded to the source.

Data extraction
The data were extracted using a data extraction tool developed for the review. The authors do not state who performed the data extraction, whether they were blinded, or how any discrepancies were resolved.

Data were extracted on the intervention (method, setting and participants), the nature of the intervention (number of participants, and description), the outcome measures (description, length of follow-up, and scale or measure employed), and the study results. The study results were extracted in terms of the outcome for the treatment and control groups, for both dichotomous and continuous data.

The odds ratios for categorical outcome data, or weighted mean differences for continuous data, were calculated where possible for each study, along with the 95% confidence intervals.

**Methods of synthesis**

**How were the studies combined?**

The results from comparable groups of studies were pooled, where appropriate, in a statistical meta-analysis. Where statistical pooling was not possible, the findings were combined narratively.

**How were differences between studies investigated?**

Heterogeneity was tested using a standard chi-squared test.

**Results of the review**

Fifteen RCTs were eligible for inclusion in the review. Of these, nine studies examined the effectiveness of specifically designed pamphlets on patient knowledge and compliance to behaviours; there were insufficient data to calculate the total number of participants. Three studies (n=522) examined the use of a pre-operative instructional video to improve patient knowledge; one study (n=98) examined the use of learning packages on orthopaedic and general surgical patients; and two studies (n=391) examined either the effectiveness of different times of delivery or formats of structured instruction. The studies used a range of different comparators, details of which were provided in the review.

Pamphlets appeared to be generally beneficial as an instructional method in terms of the following.

1. Knowledge of condition and surgical procedure: pre-admission pamphlets were more effective than providing no information, and were at least as effective as providing a post-admission pamphlet with instructions that explain the contents of the pamphlet; providing a pre-admission pamphlet only was as effective as providing the same pamphlet with instruction pre- or post-admission.

2. Exercise or skills performance: generally, providing pre-admission pamphlets was more effective than providing post-admission ones; when pre-admission pamphlets were combined with post-admission instruction this was found to be more effective than pre-admission pamphlets alone, or a combination of post-admission pamphlets and teaching; post-admission, the provision of either the pamphlet alone or instruction was equally effective as providing a pamphlet and instruction.

3. Time taken to learn skills: generally, the patients provided with pre-admission pamphlets learned proper exercise technique or skills faster than those provided with information post-admission; a pre-admission pamphlet combined with post-admission instruction was also found to result in quicker learning times compared with individuals given post-admission pamphlets combined with instruction.

The results on the effectiveness of videos as an instructional method were inconclusive or contradictory, but they may have a role as part of a broader pre-operative education programme.

The role and effectiveness of learning packages has not been adequately evaluated. A single study found that patients who received learning packages were more compliant than those that did not. For teaching as a method of instruction, the authors found that pre-admission teaching was more effective than post-admission teaching in terms of the patients’ knowledge; group teaching was as effective as individual teaching for improving skills performance, and might reduce the time required to acquire exercise skills.
Authors' conclusions
No formal conclusions were provided. From the discussion section, the authors state that little high-quality research has assessed the effectiveness of pre-operative information on patient knowledge and the ability to perform specific skills. From the summary of the results, the authors state that the review supports the use of pamphlets to inform patients and to improve their skills; that the use of videos has not been adequately evaluated, although they may have a role as a component of a larger teaching method; and that the data suggest that the instructional method is useful for improving patient knowledge of their treatment, and their ability to perform and comply with required tasks. Instruction is likely to be more effective if performed prior to admission, but if provided post-admission, group instruction is likely to be as effective as individual instruction. Providing pamphlets pre-admission is equally effective or more effective than providing the same information post-admission. However, there is no information available relating to issues such as what information should be provided in the pamphlet.

CRD commentary
The review question and the study selection criteria were stated clearly. The literature search seemed reasonably comprehensive, although it was unclear whether any language restrictions were employed. Some information was provided on the selection, validation and data extraction procedures. However, the authors neglected to specify the numbers of reviewers involved in these processes, whether they were blinded to the source, or how any disagreements were resolved. Information from the individual included studies was summarised and some of these data were also presented graphically. However, there was little information on the statistical analyses undertaken when pooling these studies, although the authors stated that these were carried out, and no details of the numerical findings were presented either narratively or graphically.

The authors did not provide a formal conclusions section; the reader is left to interpret these from the discussion, summary findings and the implications sections.

Implications of the review for practice and research
Practice: The authors state that the use of pamphlets to inform patients and to improve their skills is indicated by the review. Videos may have a role as a component of a larger teaching method. The instructional method is useful for improving patient knowledge of their treatment, and their ability to perform and comply with required tasks. Instruction is likely to be more effective if performed prior to admission, and group instruction is likely to be as effective as individual instruction if provided post-admission.

Research: The authors state that research should evaluate the effectiveness of pamphlets and other written material for people with English as a second language, or with limited literacy skills. Research should evaluate the accuracy of information provided in pre-operative pamphlets and its influence on patients' ability to perform exercises, the time taken to learn exercises, and their knowledge about the pre- and post-operative periods. Studies with larger participants populations should be undertaken to evaluate the benefits of pamphlets.

Further research is also needed:

- to investigate the role and effectiveness of videos as an educational medium;
- to clarify the circumstances under which pre-operative instruction is most effective, and what the most effective format is for this method of instruction;
- to evaluate the effectiveness of computer-assisted instruction, which is currently employed in a variety of clinical situations; and
- to measure the change in patient misconceptions of forthcoming procedures, with the provision of pre-operative information.

Bibliographic details
Hodgkinson B, Evans D, O'Neill S. Knowledge retention from pre-operative patient information. Adelaide, S. Australia,
Other publications of related interest
2. NHS Centre for Reviews and Dissemination. Undertaking systematic reviews of research on effectiveness. CRD’s guidance for those carrying out or commissioning reviews. York: University of York, NHS Centre for Reviews and Dissemination; 1996.

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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.