The effects of mode of exercise instruction on correctness of home exercise performance and adherence

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CRD summary
This review assessed the effectiveness of methods for delivering home exercise instructions. The authors concluded that there was moderately strong support for face-to-face verbal instructions plus written material and modest support for adding videotaped instructions. A more cautious conclusion may have been appropriate given the limited information from a small number of generally flawed studies.

Authors' objectives
To assess the effectiveness of home exercise instructions delivered using face-to-face verbal instructions, brochures, audiotapes and videotapes on the correctness of exercise performance and adherence.

Searching
MEDLINE (1966 to June 2001), CINAHL (1982 to June 2001), HealthSTAR (1975 to June 2001), EMBASE (1984 to May 2001), the Cochrane Musculoskeletal Group's trials register and the Cochrane CENTRAL Register (Issue 1, 2001) were searched for studies published in the English language; the search terms were reported. The reference lists of identified articles were handsearched for additional relevant studies.

Study selection
Study designs of evaluations included in the review
Prospective studies with a control group were eligible for inclusion.

Specific interventions included in the review
Studies of home exercise instructions provided using face-to-face verbal instructions, brochures, audiotapes and videotapes were eligible for inclusion. Studies were excluded if they assessed passive exercises, relaxation, or the attainment of movement skills in sport. The included studies assessed: the addition of face-to-face verbal instructions to an illustrated brochure; the addition of a booklet with 'credibility enhancing cues' to the booklet alone, and compared both with no booklet; the addition of a videotape to verbal instructions plus a booklet; the addition of a personalised illustrated brochure to verbal instructions; and an illustrated brochure compared with a videotape.

Participants included in the review
Studies of older or younger adults who were instructed in home exercises or hospital in-patient routines were eligible for inclusion. The included studies were conducted in participants with neck or low back pain, patients before and after arthroplasty, and college-aged students.

Outcomes assessed in the review
Studies that reported quantitative data for the correctness of exercise performance and adherence to home exercise were eligible for inclusion. In the review, the correctness of performance was defined as the therapist's judgement of the accuracy with which patients carried out the demonstrated exercises, while adherence was regarded as how well the prescribed exercise programme was followed.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The studies were assessed using criteria that included some of the items on the PEDro scale. The criteria used were: the
comparability of level of education and literacy between treatment groups; instructional material understood by at least 85% of the participants; sensible primary outcome measures; point estimate and variability of at least one outcome measure; random allocation to treatments; allocation concealment; baseline comparability of the groups on prognostic factors; allocated treatments received, or analysis on an intention-to-treat basis; attrition rate less than 15%; groups treated equally; and blinding of the outcome assessor. The maximum possible quality score was 11. The authors did not state who performed the quality assessment.

Data extraction
The data were extracted onto a data form developed for the review, but the authors did not state how many reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
The studies were grouped according to the method of delivering instructions. Other differences were also discussed in the text and further information was tabulated.

Results of the review
Five controlled studies (n=331) were included: four randomised controlled trials (n=271) and one quasi-experimental study (n=60).

The quality scores ranged from 5 to 8 out of 11. Methodological flaws included a lack of information on the literacy level required to read written material, differences between treatment groups at baseline, differences in exercise programmes between groups, and different cointerventions used for treatment groups.

Verbal instructions: one study of people with neck and low back pain found that the group receiving face-to-face verbal instruction plus brochures performed exercises more correctly than the group receiving brochures alone (P<0.01).

Written instructions: one study of people with low back pain found that adherence to exercise was greater with written instruction plus face-to-face verbal instructions than with face-to-face verbal instructions alone (74.4% versus 38.1%). Verbal and written instructions plus ‘credibility enhancing cues’ or illustrations: one study of people with low back pain found that the group receiving information booklets with credibility enhancing cues reported significantly higher levels of exercise adherence than the group not receiving credibility enhancing cues (92% versus 50%, P<0.01).

Videotaped instructions: one study of college-aged students found that the group given the videotape showed greater quality of exercise performance than the group given no videotape. A second study in people undergoing total knee arthroplasties who all saw a videotape on admission found that the group given a booklet plus exercise instruction at a pre-admission clinic visit performed exercises more regularly (P<0.05) and accurately (P<0.05) than the group given the same material post-operatively.

Authors’ conclusions
There was moderately strong support that face-to-face verbal instructions plus written material can improve the correctness of exercise and adherence to a home exercise programme. There was modest support for the addition of videotaped instructions to further improve exercise correctness and adherence.

CRD commentary
The review addressed a clear question that was defined in terms of the participants, intervention, outcomes and study design. Several relevant sources were searched and attempts were made to locate unpublished studies, thus limiting the
possibility of publication bias. The restriction to English language publications might have resulted in the omission of other relevant studies. The methods used to select studies, assess quality and extract the data were not described, so it is not known whether any efforts were made to reduce reviewer error and bias. Quality was assessed using specified criteria and the results were discussed.

Combining the studies in a narrative was appropriate given the small number of diverse studies, and the synthesis took account of some aspects of study validity. The limitations of using self-reports for measuring outcomes without any form of validation were not highlighted. The conclusions, unlike the synthesis, did not appear to take the methodological limitations of the included studies into account. A more cautious conclusion may have been appropriate given the limited information from these generally flawed studies.

**Implications of the review for practice and research**
Practice: The authors stated that physiotherapists should consider using verbal instructions and illustrated brochures with maximal readability when advising home exercises for older people.

Research: The authors did not state any implications for further research.

**Bibliographic details**

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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.