CRD summary
This review assessed the efficacy of pre-operative exercises on post-operative mobility and function in adults undergoing total knee replacement. The author concluded that there was no evidence to support the efficacy of such exercises and further research is required. However, the reliability of the conclusion is uncertain given concerns about the literature searches and the poor reporting of review methods.

Authors' objectives
To assess the effects of pre-operative exercise on the mobility and function of patients following total knee replacement (TKR).

Searching
MEDLINE, CINAHL, EMBASE and PEDro were searched from inception to 'present'; no specific dates were given, but the search terms were reported. The reference lists of included studies were checked. Only articles published in the English language were considered.

Study selection
Study designs of evaluations included in the review
Only randomised controlled trials (RCTs) were eligible for inclusion.

Specific interventions included in the review
Studies of pre-operative interventions that included a formal physical therapy or exercise programme for the lower limbs compared with either routine pre-operative care or other intervention, such as video instruction, were eligible for inclusion. Studies that included only education about exercise or a one-off physiotherapy session were excluded. The included studies evaluated 15 or 18 pre-operative exercise sessions over 5 or 6 weeks in comparison with no pre-operative treatment or a one-off pre-operative meeting with printed material.

Participants included in the review
Studies of adults aged 55 years or older with osteoarthritis, who were undergoing a primary TKR, were eligible for inclusion. Patients undergoing unicompartmental knee replacement were also eligible for inclusion.

Outcomes assessed in the review
Studies that evaluated outcomes related to mobility (e.g. distance or speed of walking) or function (e.g. a measure of the ability to perform lower limb functions) were eligible for inclusion. Only studies that used a validated measurement scale were included. One of the included studies measured mobility outcomes and the other measured function outcomes.

How were decisions on the relevance of primary studies made?
The author 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 according to criteria devised from Greenhalgh and McDonald. The criteria included consideration of randomisation, blinding, timing of the outcome measurements, sample size and attrition. The author did not state how the validity assessment was performed.
Data extraction
The author did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Mean values with standard deviations were reported, where possible, for walking speed and function. Mean function scores were estimated from graphical data in one study.

Methods of synthesis
How were the studies combined?
The studies were described in a narrative summary, although due to the different outcomes that were assessed in the studies, they were not synthesised.

How were differences between studies investigated?
Differences between the studies were highlighted in the text of the review.

Results of the review
Two RCTs were included (n=60, as 10 participants were disregarded because of receiving a cardiovascular exercise programme).

Study quality.
Neither study reported blinding. One study reported an adequate method of randomisation. The follow-up in both of the studies was above 80% and considered acceptable. Only one study considered the original sample size and performed a sample size calculation.

Efficacy.
One study measured mobility outcomes in terms of walking speed and, overall, no statistically significant differences were found between treatment groups. The other study reported on functional outcomes using the HSS knee rating scale; both the intervention and control groups demonstrated a decrease in total function.

Authors' conclusions
No conclusions about the effectiveness of pre-operative exercise in improving the mobility of TKR patients could be drawn. Further study is required.

CRD commentary
This review addressed a clear question in terms of the interventions, participants, outcomes and study designs that were eligible for inclusion. Relevant sources were searched, although no attempts were made to locate unpublished studies and eligibility was restricted to articles in English. This suggests that some relevant studies might have been missed due to language and publication bias; a possibility the author acknowledged. The methods used to select the studies, extract the data and assess the quality of the included studies were not described and, since the review had only one author, it was unclear whether any efforts were made to minimise the threat of reviewer bias or error. Study quality was considered and discussed in context although, overall, the reporting of individual study details make independent judgement by the reader difficult.

Given the small number of identified studies using different outcomes, the narrative descriptions were appropriate. The poor reporting of review methods and the limited search mean that the reliability of the author's conclusions is unclear. The recommendations for further research appear appropriate given the small number of studies identified.

Implications of the review for practice and research
Practice: The author did not state any implications for practice.
Research: Further studies of larger sample sizes, using robust methods, are required.

Bibliographic details

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Subject indexing assigned by CRD

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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.