Reviewer's report

Title: Six-week high-intensity exercise program for middle-aged patients with knee osteoarthritis - a prospective, randomized, and controlled study

Version: 2 Date: 12 January 2005

Reviewer: Marlene Fransen

Reviewer's report:

General
Most initial review comments addressed and paper/tables much clearer. Still evidence of poor interpretation of the literature e.g. controlling for radiographic severity and still finding improvements with exercise can NOT be interpreted as evidence that patients with severe radiographic disease can improve with exercise. Controlling means adjusting results for chance imbalances between the allocation groups. The Deyle et al study did not provide any data on the strength of the association between radiographic severity and outcomes or its magnitude. Patients with more severe disease (only 35% of Deyle sample) could easily have been less responsive to exercise, but the group mean improvement was still significant as patients with mild disease (65% of the sample) had large enough improvements to keep the mean improvement significant.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Statistics: Power calculations are inappropriate. Should have used the primary outcome (KOOS) in an OA population. However, if this is what was done...need information on size of difference to be detected.

Results: Should report results as change score (not after vs before), as this is the score the p value is based on. Also would improve interpretation markedly if change score (95% confidence interval) was reported, rather than only p values. This will give a better indication of the range of change scores. Drop sentence about controls reporting more symptoms. This was not significant.

Discussion:
Main message: Very confusing. That there will be individual differences in responsiveness to treatment is obvious and should not be the first sentence. Group comparisons did show differences in SF-36 PCS. Whilst the SF-36 was not the main outcome, it is a measure of physical function.

Comparison with other studies:
Need to consistently specify that this sample all had moderate-severe radiographic disease, rather than ‘definite’, which would include K&L2. (also in Conclusion)
Drop sentence in discussion reporting that there is evidence that improvements have been found after controlling for radiographic severity (Deyle et al). Incorrect interpretation of the literature (see above) and not in agreement with the discussion points raised in last paragraph of this section.
Drop 2nd paragraph, publication bias is universal and not specific to knee OA trials. Making unsubstantiated assumptions regarding dropouts and highlighting the weakness of the current ‘completers only’ analysis.

Critical assessments:
Effect size for pain is moderate (see latest Cochrane meta-analysis).
Need to include paragraph explaining that finding that only 1 out of 5 KOOS subscales was significantly improved may have been due to chance. No adjustment was made to the significance level to account for the multiple comparisons made in the statistical analysis of this study.

Conclusion: Drop last sentence. Not useful.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Table 4: Are the scores for one-leg jump in the control group correct?
Drop all the n.a. (understood that not available for paired analyses).

Discretionary Revisions (which the author can choose to ignore)
Interventions:
Can leave details of the actual exercised performed to an appendix.

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No

**Declaration of competing interests:**
I declare that I have no competing interests