Reviewer's report

Title: Systematic review and meta-analysis comparing land and aquatic exercise for people with hip or knee arthritis on function, mobility and other health outcomes

Version: 3 Date: 30 December 2010

Reviewer: Luciana Macedo

Reviewer's report:

I would like to congratulate the authors on the nicely conducted review. I have a few comments and recommendations.

Major compulsory revisions 1: At the end of your background right before objectives it is still not clear why you conducted and what is the need for this review as other reviews in topic are available. Furthermore, you mention in your objectives that no review have compared only these two interventions. I don’t think this is a strong enough argument to support this review as other reviews that compared these two interventions in addition to others may be more comprehensive to readers. I think more information is needed to support the need for this review. Maybe flaws with Bartels review?

Major compulsory revisions 2: The method for calculating standard deviation from interquartile range is incorrect. Please refer to the Cochrane Handbook for appropriate method.

Minor essential revisions

Recommendation 1 - Abstract; Clinical applications: The first phrase is a little confusing. “… evidence of the benefits on health outcomes of aquatic over land based programs would appear relevant to justify the routine prescription of aquatic exercise therapy for arthritic condition.” From my understanding the authors are saying that if there was evidence of the superiority of aquatic exercises then its use would have been justified. I think it is more important to focus your clinical application on what you found than what would have happened if the results of the review were different.

Recommendation 2 - Abstract; Clinical applications: “On the other hand aquatic exercise provides an alternative that appears to produce results that are comparable to land based exercises programs for patients who FEEL unable to exercise on land.” I think that the word feel may add some uncertainty to the statement. I think it may be better to say patients that ARE unable to exercise on land or what studies have previously used to describe this patient population.

Recommendation 3 – Background, 3rd paragraph: “Bartels et al. reviewed the effectiveness of aquatic exercise for the treatment of knee and hip osteoarthritis and concluded that aquatic exercise improves function…” The way that this phrase is written two conclusions could be taken, 1st aquatic exercise improves function and land based do not and 2nd aquatic exercise improves function more
than land based. Which one is the correct one?

Recommendation 4 – Methods, Types of studies: “To allow statistical comparison between trials and the effect to be independently appraised, papers were only included if they were provided data that enabled interventions effects for aquatic compared to land based exercise to be tested for significant differences.”

Do you mean that studies were included when there was enough information to allow pooling? The statement “to be tested for significant differences” is not clear as this is not really what you are trying to do. Additionally, based on Figure 1 only one of the pre selected studies did not meet this criteria. Did you try to contact this author and ask for the data? This is common practice and could strengthen your review.

Recommendation 5 – Methods, Exclusion criteria: “Participants who exercised as part of rehabilitation immediately following joint replacement surgery were excluded as the review focus was effectiveness for people with joint affected by arthritis.”

I agree with the exclusion of paper dealing with immediately post surgery exercise. However, I think that the outcomes of patients with history of surgery with those with no surgery can be quite different. I think that such studies should be carefully evaluated before being pooled together. Also it may be important to include this as a limitation in your discussion. Additionally the information on table 2 about previous JRS is a little confusing. What does the x mean in front of the time of previous surgery? Where these trials excluded or maybe just the population that have had surgery????

Recommendation 6 – Methods, Quality assessment: I think that the authors should clearly state on this section that they have evaluated methodological quality using a modified PEDro scale and explain the differences. My personal opinion is that all further discussions on the differences in your scoring and the scoring found on the PEDro database may distract readers from the main focus of your review.

Recommendation 7 – Methods, Data extraction: The authors mention that only immediate after treatment outcomes were included in the review. I think it is important to explain why you were not interested in long term follow-ups. If you have the studies why not look at these too? Also, I think it would be important to include in either one of your tables, maybe table 3, the time of follow up included in the review for each one of the included studies.

Recommendation 8 – Results, Search yield: The total number of papers according to figure 1 is 191 and not 248. Also I think that the authors did not complete their explanation of figure 1. Eighteen full papers were obtained … with the inclusion of 10 studies.

Recommendation 9 – Results, Meta analysis: What are the numbers of patients included in each one of the pooled analysis?

Also, I think that the sensitivity analysis conducted is important but all this information presented here may be a little confusing for readers. In my opinion the results would flow better if the authors create a section called sensitivity
analysis and present the results of this analysis on this section.

Recommendation 10 – Discussion: The first paragraph of your discussion should include the primary findings of your review. I think that picking randomly specific characteristics of each included study and adding to this paragraph is very confusing and does not add to the discussion of your results.

Additionally in my opinion the first phrase of your discussion could be divided in two. First the main results, second the sensitivity analysis. This way you can explain better what baseline differences mean.

Recommendation 11 – Discussion: As mentioned previously in my opinion a discussion of the differences in PEDro scoring between this review and the PEDro database is not in the scope of this review and including 2 paragraphs of your discussion about this topic is irrelevant to your objectives.

Recommendation 12 – Discussion: I think it is important to include in your review a discussion about the main differences of your review and Bartels review.

Recommendation 13 – Conclusion: “High quality trial design, with clear allocation and randomization procedures…” I agree that higher quality trials are needed, however, I am not sure if the solution is in the allocation concealment and randomization as most studies had adequate randomization and allocation concealment according to table 1.

Recommendation 14 – Clinical application: The authors concluded that the clinical decision making should take in consideration patient’s specific requirement and disabilities. I think that the authors could also include patient preferences as any evidence based approach should consider the best available evidence, patients preferences and therapists expertise.

Recommendation 15 - Tables: All tables should be at the end of the manuscript.

Recommendation 16 - Table 5: I think that table 5 is only a summary of tables 4 and 6. In my opinion table 5 can be easily explained on text and excluded from the review.

Recommendation 17 - Tables 8-10: There is a lot of information given on these tables that are not important to readers. Overall the same information has already been presented on the forestplots. In my opinion these tables are not adding to the quality of the review.

Recommendation 18 - Table 1: The symbol (x) on caption is incorrectly represented on the table as (1).

Recommendation 19 - Figure 1: According to the flowchart one study was excluded from the review as the land based program was supplemented with electrotherapy. I was curious to know if electrotherapies have a significant effect on the outcomes of interest in this patient population. Also how large was the contribution of this treatment to the land based exercise. Depending on your answers it may be arguable that this study could be included in your review.

Recommendation 20 - Figure 1: On figure 1 the authors misspelled the name of one author (Silva and not Silvia). The same mistake was performed on the forestplots.
Recommendation 21 - Figure 1: The authors listed a number of studies that were excluded from full text but do not provide the full reference for these studies. I think this information should be available to readers on your reference list. Consider including the reference numbers from the reference list on figure 1.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

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