Reviewer's report

**Title:** Neuromuscular training to enhance sensorimotor and functional deficits in subjects with chronic ankle instability: A systematic review and best evidence synthesis

**Version:** 1  **Date:** 22 March 2011

**Reviewer number:** 2

**Reviewer's report:**

Major Compulsory Revisions

This manuscript has attempted to address a pertinent and interesting clinical question of the effectiveness of neuromuscular training to improve a variety of sensorimotor outcomes. The systematic review process appears to be sound and thorough. The authors have elected to utilize a scale for scientific evidence that rates the quality of the included studies. This seems appropriate for what the scale is intended to do: rate the quality of the evidence. However, what is still needed to strengthen this review is to have indices of the actual differences and the magnitude of these differences. The authors have included effect sizes in the associated tables. However, these are not discussed in the body of the text. I believe incorporating the information that can be concluded from the effect sizes will greatly improve the presentation of the manuscript. Additionally, it would be helpful to have 95% Confidence Intervals around the effect sizes presented to determine the usefulness of the calculated effect sizes.

Minor Essential Revisions

Please include page numbers and line numbers for future submissions to be able to more effectively communicate areas for comment

1. Introduction, last paragraph: It is unclear from the stated purposes if the aim of this review was to examine effectiveness of exercise for prevention or treatment for CAI; both are mentioned. Please clarify the primary purpose.

2. Article Inclusion and Exclusion Criteria: under 1st item, suggest writing out the words for RCT and CCT as this is the first time you’ve used these terms. Under item #2, perhaps also state examples of what neuromuscular training was not (ie flexibility training). Also, in the second paragraph, mentioning that results and effect sizes were acquired for the neuromuscular training groups only, does this mean that no effect size comparisons were made with control groups?

3. Data Extraction: 2nd paragraph, mentions that “where feasible the core findings of each article were expressed as effect sizes”. I thought the authors stated it was a requirement that data be present in order to calculate effect sizes was an inclusion criteria? Please clarify. For the calculation of effect sizes, please specify what was used: control group standard deviation? Pooled
standard deviation? Other? It would be very useful to include the 95% confidence intervals around the effect sizes. This helps to verify the likelihood that the ES did not cross zero. For the outcome measures, all are appropriate. However, did the authors consider only including NM outcome measures since the exercise interventions were NM based? For instance, why would NM training improve ankle arthrometry?

4. Data Analysis: the authors utilized the scale published in the van Tulder paper. I don’t see from that source that this scale has been validated or widely applied. I am more familiar with other scales (SORT, Oxford Centre for Evidence Based Medicine). Can the authors provide some justification for using this scale instead?

5. Effectiveness of NM Training throughout these sections, please consider incorporating the effect sizes that have been calculated to strengthen these presented results. Also, from an organization approach, rather than presenting the review results from the groupings of the evidence scale, perhaps the data could be presented from the perspective of which measurements had improvements following intervention and which did not. The evidence scale does not provide the magnitude of the intervention effect, only whether there was homogeneous findings.

6. Muscle Onset Latencies: in the first sentence, the authors state that EMG was used to assess proprioception. I think that it is more appropriate that EMG was used to assess neuromuscular control.

7. Discussion: The third paragraph gives a nice description for how risk of bias was assessed. I think this would be more helpful for the reader to have earlier in the methods section. If one is not familiar with this assessment tool, the results section could be very confusing without this explanation.

**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.