Author’s response to reviews

Title: Neck pain and postural balance among workers with high postural demands - a cross-sectional study

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Version: 2 Date: 11 February 2011

Author’s response to reviews: see over
Dear Editor in Chief
The manuscript has now been edited according to the comments of the referees as well as copyedited by a native English speaking academic editor. We believe that the manuscript has considerably approved. Our replies to the referees are given below (the underlined pieces of text).

On behalf of the authors,
Marie Birk Jørgensen

To Julia Treleaven:
We thank the reviewer for her thorough review and comments on the results. We have complied with the requests and believe that the manuscript has been significantly improved.

Reviewer’s report
Title: Neck pain and postural balance among workers with high postural demands
Version: 1 Date: 1 December 2010
Reviewer: Julia Treleaven
Reviewer’s report:

This study has been conducted reasonably well although the number of normal subjects who failed the unilateral stance test is quite high based on normative data for this age group (Vereeck et al., 2008). I am wondering whether the exclusion criteria were sufficient to take out all other possible causes of disturbed balance.

Our reply: Yes, it is true that the high failure percentage on the unilateral stance test could be due to the applied exclusion criteria. However, it is important to note that the participants are working at least 20 hours per week in an occupation with high postural demands (cleaning). It is very unlikely that someone can work as a cleaner with severe balance disturbances. Therefore, we consider the result as an indication of the alarmingly poor balance among the cleaners, that may be one of the causes to their high prevalence of musculoskeletal disorders. However, the differences in results between studies may also be due to differences in modalities. Differences are in a comparison between our study/Vereeck et al. (2008), that participants having shoes off/on, fixated/unfixated vision, arms across the chest/arms free to move, certain standing leg/free and alternating standing leg. Several of the modalities chosen by Vereeck et al. (2008) presumably make the test easier to perform. This aspect is addressed in the section on methodological considerations.

The emphasis on the single leg stance is important as there were no differences between rhomberg eo, or perturbation and only other difference found was rhomberg ec CEA and rambling.

Our reply: We agree, and we have paid special attention to this finding in the revised version of the manuscript.
Specific points:
Abstract: 3 different “tests”.

Our reply: Now corrected.

Be consistent with p values = or <.

Our reply: We now use < instead of = consistently throughout the abstract.

“The” simple

Our reply: Thank you. Now corrected.

81 vs 61% significant difference thus a lot of false positives in the group without pain.

Our reply: Information on this issue has now been presented and discussed in the results and discussion sections.

Background
Page 4 para 1 reference for elderly patients.

Our reply: This is now given.

Methods
Page 4 – other exclusion criteria – eg vestibular pathology, CNS dysfunction, etc
Etc
Our reply: We did not collect data on these pathologies, and thus no one was excluded on that basis. The reason is as mentioned above, the participants are all working at least 20 hours per week with cleaning, and it is very unlikely that a person with these pathologies would be able to perform that type of job.

Trauma on day of trial- define this-
Our reply: The sentence on trauma is now detailed including a definition.

Page 6 Unilateral stance – dominant “foot” not food.

Our reply: Spelling error is now corrected.

Rhomberg – eyes open why only one trial and other tests 3 trials.

Our reply: The Romberg with eyes open was performed primarily as a familiarisation test. This has now been written in the methods section

Page 8 figure X – should this be figure 2.

Our reply: This should refer to Figure 1.
Back pain as a confounder- how was this determined and established- how much back pain. Did this account for failure rate of unilateral stance.

Our reply: The low back pain was adjusted for (with a step-wise entry) in model 3 for the Romberg tests. A description of the categorisation of back pain is given in the statistical section. The percentage of failure rate among participants with and without back pain has now been given in the results section.

Discussion-
Trembling not really a difference when adjusted for back pain.
Page 11 para 2- bit confusing re point trying to make.

Our reply:
Persons with neck pain often also have low back pain. Therefore, for investigating the importance of neck pain for postural balance (without the influence of back pain), it is necessary to control/adjust for low back pain. We found that the significant difference in trembling between cleaners with and without pain diminished after adjusting for back pain. This indicates that there is not a strong association regarding trembling and neck pain status alone.

Page 12 2nd para last line- 61% of the non pain group failed also- this would make the test sensitive but not specific. – Was age a factor in whether subjects failed or not??
I think more discussion on why the non pain group was so high with this as well. even though statistically significant difference between groups.

Our reply: The age factor has now been evaluated, and the generally high failure rate more extensively discussed.

Limitations- need to discuss more.

Our reply: The suggested limitations are now included in the section of methodological considerations.

Figure 2 caption the “vertical”

Our reply: Thank you. This is corrected.

Tables
Setting out could be better to see differences between groups and easier to read.

Our reply: Changes are applied to facilitate reading of the differences.

SD. between numbers not ,

Our reply: This has been corrected.

Other comments
What about concurrent back pain in demographics—how many in each group had back pain. Did this influence failure rate of single leg stance. Was the time that they could maintain unilateral stance considered and were there differences between the groups? Were there any correlations between fail single leg stance and age, days of neck pain, concurrent back pain etc.??

Our reply: Concurrent low back pain is now reported in relation to performance on the unilateral stance test, and its influence on the unilateral stance test is given. It seems as though only concurrent low back and neck pain result in increased failure rate in unilateral stance. This is now described. Since a cut-point of 30 seconds was chosen, the time participants could maintain unilateral stance was unfortunately not recorded in a valid manner and thus a correlation could not be tested against a continuous variable of the unilateral test. However, we compared the age among those failing and those accomplishing the unilateral test, and there was no relevant difference. As given above, the influence of low back pain has also now been reported.


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: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests: I declare that I have no competing interests

To Mats Djupsjöbacka:
Thank you for your summary of the shortcomings of the manuscript. These have, in combination with a proof reading by a native English speaking academic editor, been complied with, and have in our opinion considerably improved the manuscript.

Reviewer’s report
Title: Neck pain and postural balance among workers with high postural demands
Version: 1 Date: 20 December 2010
Reviewer: Mats Djupsjöbacka
Reviewer’s report:
In the manuscript the authors aim at investigating if cleaners with neck pain have impaired postural control in quiet standing compared to cleaners without neck pain.
While the study seems to be well motivated and most likely is of high quality I am however concerned about the presentation. In my opinion the manuscript needs substantial improvement in clarity of presentation and quality of language before
it can be given a fair review.

Some examples of shortcomings are:

- The title does not contain information on the design. The instructions for authors clearly states that it should.

  Our reply: The design is now given in the title.

- The design is not explicitly stated anywhere in the manuscript until the very end of the discussion.

  Our reply: This is now stated in the title, abstract, methods and the introduction.

- The questionnaire used is referred to as the 'Nordic Questionnaire on Trouble'. I presume that the authors mean the 'Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms.'. It is not good practice to invent new names for established instruments.

  Our reply: The proper title of the Questionnaires is now given in the text.

- The exclusion criteria are given in two different sections in the Methods description, which is confusing. Further, I guess that the exclusion criteria given under 'Procedures' may not be correct. What if a participant had had neck, low back, hip, knee or ankle trauma the day before the trial?

  Our reply: We see your point. Actually, the exclusion criteria first mentioned in the Method section, is intended to give a description of the included study population based on the questionnaire data. This has now been clarified. The exclusion criteria mentioned later in the Methods, are the criteria specifically for exclusion of participants from the physical tests of the study. This is now specified.

- 'The black spot' used as visual anchor is referred to in the text long before it is defined (page 6).

  Our reply: This is now presented in the appropriate place in the text.

- Page 6: 'If the participant lost balance during tests by moving arms or feet from the starting position, a new trial was recorded.'.

  This statement actually means that if subjects moved their feet without losing balance no new trial was recorded. Was this really the case?

  Our reply: No, this is surely inaccurate language. We have now corrected the sentence.

- Page 7: 'The hands held a bar...'. The hands cannot hold a bar. Subjects can hold a bar with their hands.

  Our reply: The sentence has been rephrased.
Since these types of shortcomings in the presentation are quite frequent I haven’t reviewed methods, results and other factual issues in detail.

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

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