Reviewer's report

Title: Work ability in young male and female workers - influenced by changes in work. A prospective cohort study.

Version: 1 Date: 30 March 2012

Reviewer: Alex Burdorf

Reviewer's report:

Major Compulsory Revisions
1. abstract: the authors must be careful in presenting causal associations, since changes in determinant and workability are measured simultaneously, so in essence it is about associations rather than 'predicting' or 'influencing'. This should be carefully phrased throughout the manuscripts

2. The information on the study sample needs more clarification. The manuscript needs a clear overview of the selection over time. A flow chart with information on a) the number of individuals invited for the baseline measurements, b) the number of respondents at baseline, c) participation in the follow-up measurement, and d) inclusion in the analyses would help to have a clarify information on response. Was there selective drop-out in the study? A non-response analysis using baseline data for those individuals lacking the follow-up could be informative.

3. Please be aware that the technique of defining improvement or worsening if workability is subject to regression to the mean and ceiling effects. The problem can be seen e.g. with the overall prevalence of decreased and increased workability.

4. The description of the statistical analysis is not very clear:
   - work factor treated: this is about coding, but it makes more sense to express that in the analysis on improvement a PR above 1 implies that...etc..
   - a PH model is usually applied to survival and I assume that this was done here to calculate PR, and time was constant for every observation
   - the dependent and independent variables should be defined explicitly
   - I do not think stratification by gender is the appropriate technique, a test for interaction is much more informative. When interaction presents similar results, stratification can be presented.
   - in order to investigate to regression to the mean problem, one could consider to analyse whether similar results are obtained for subjects who decrease from a high baseline value compared with those who decrease from a low baseline value.
   - could you please explain the reference groups in the analyses in table 2 and table 3. The numbers indicate that those with decreased work ability will be compared to those with no change + those with increased work ability. Would it
not be more appropriate to compare those with decreased work ability only with those who had a constant work ability? [given the fact that one wants to distinguish between increase and decrease]

5. I disagree with the term prospective relationships, since change was measured over the same time interval for both exposure and outcome.

6. The statements on associations between change in exposure as well as workability should also be discussed within the context of associations at baseline. Are similar associations found?

7. Limitations: the prospective design is an advantage, but the type of analysis is essentially not prospective..this should be discussed more carefully.

Minor Essential Revisions
1. It would help to understand the timeframe of the reported changes in workability in the studies cited in the introduction

2. In the introduction it is stated that separate analysis for men and women are required, I would argue that that is not a good idea, one should investigate in the same sample potential interaction (a stratified analysis is not a good idea since many factors will differ between both strata)

3. Please note the response rate is an incorrect term, since it is definitely not a rate.

4. Table 2 includes the term cases, which is not explained in the text, and also a rather odd term given the study population.

5. I am not sure about the statement that possible gender differences were seen. where are these differences to be seen? (the PR of men must be outside the CI of the PR of women and vice versa, and in a quick check for most PRs this was not the case, so a more proper statement would be that there were no gender differences)

6. A whole range of physical and psychosocial work factors are studied in relation with changes in work ability. How do the work factors correlate? In the methods it is described that all Spearman’s correlations were weaker than 0.8. However, they can still correlate moderate to strong. In my opinion more information on the correlation of the factors should be presented in the results section.

7. The conclusion, as stated in both the abstract as well as in the discussion section, needs further specification: ‘Consequently, several possible work factors could be suggested for the prevention and promotion of work ability in young workers’. Which work factors would you suggest in the prevention of reduced work ability or promotion of work ability?

8. Tables: Consistency is needed in the tables, e.g. in the number of decimals presented.

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, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests'