Author's response to reviews

Title: Risk factors of acute and overuse musculoskeletal injuries among young conscripts: a population-based cohort study.

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Version: 5 Date: 9 March 2015

Author's response to reviews: see over
Dear Editor,

Thank you for your e-mail including the comments on our manuscript entitled “Risk factors of acute and overuse musculoskeletal injuries among young conscripts: a population-based cohort study”.

We thank the reviewers for their constructive criticism and comments. We have revised the manuscript according to the reviewers’ suggestions in blue font. Our point-by-point responses below are given in italics in the same order as the suggestions given in your letter.

We hope that the revision and responses given are satisfactory and that the revised manuscript is now acceptable for publication in the BMC Musculoskeletal Disorders.

We appreciate the opportunity to revise the manuscript and look forward to hearing from you soon.

Yours sincerely,

Henri Taanila
Author's response to reviews

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Authors:
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Reviewer 1

Comments to the authors

The authors have responded to all the concerns raised in the first review in a detailed and appropriate manner. The assumptions behind the Cox regression model are suitably addressed. On top, the uncertainties I had on time-scale, re-occurrences and competing risks are also addressed to an acceptable standard.

Thank you!

Still, there is the major issue regarding stepwise procedures. In the present manuscript, the authors do argue why they the variables are included in their model. This part is acceptable. In contrast, I do believe there is sufficient evidence in the statistical literature against the use of this approach during the past 15 years. I am unable to locate new references to cite from the statistical-oriented literature, which are in favor of the approach. Of course, it is, indeed, possible to locate articles were the approach have been used to analyze data collected in original studies (possibly because the reviewers told them to). That does not solve the problem about the inaccuracies identified in statistical literature. The article by Steyerberg et al. highlighted in my previous review is one of the articles describing these inaccuracies. The authors refer to Hosmer and Lemeshow from 1989. This reference is clearly outdated. Then, the authors argue that the confidence interval does not tend to narrow. This might be correct in the present dataset, but it does not solve the problem that estimates in the final model may be biased away from the null and p-values tend to be too small. As a consequence, I am not sufficiently convinced that the stepwise procedure is appropriate in this context. Please cite up-to-date statistical-oriented literature, which supports the use of stepwise procedures.

Stepwise procedures were not used. This has now been clarified in page 8 second paragraph (blue font): After presenting univariate results a multivariate Cox’s proportional hazard models (enter-method) was used to identify independent risk factors for AI and OI incidence and examine interactions between risk factors.

After re-consulting statistician expert (MSc., Kari Tokola, UKK-institute), we consider the above mentioned Cox-regression enter-method is suitable for the present data and an up-to-date method to perform the multivariate modelling.

In addition, we have run additional multivariate analyses also by choosing only the statistically significant ($p< 0.05$) variables in univariate analyses into the multivariate model to explore whether this would have an effect on final results. Same risk factors were significant supporting the present results and conclusions. If necessary, we can provide these results as additional material.