Author's response to reviews

Title: Computer-induced health complaints and sources of ergonomic instructions in computer-related issues among Finnish adolescents: A cross-sectional study

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Author's response to reviews:

The BioMed Central Editorial Team Tampere, 28th February 2009

Dear Editor,

Thank You for the useful comments concerning our manuscript entitled “Computer-associated health complaints and sources of ergonomic instructions in computer-related issues among Finnish adolescents: A cross-sectional study” (MS: 1963548877221742). We are grateful for the expert criticism given by the referees, and we have now made the suggested clarifications and changes (see separate list included). We hope the changes are satisfactory, and resubmit the manuscript for your consideration.

Yours sincerely,

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Appendix 1. Covering letter.
Appendix 2. Revised paper.
Appendix 3. Tables (5).

Appendix 1.

MS 1963548877221742: Computer-induced health complaints and sources of ergonomic instructions in computer-related issues among Finnish adolescents: A cross-sectional study

We have revised the article taking the reviewers’ comments into account. The following changes and corrections have been made:

Reviewer 1 Christiane Stock
1. Re: The results section should be structured by headings for the different topics.
   We have written the headlines to the results section.
2. Re: In the part reporting results of table 4 (page 11) comparisons are described between girls and boys and between age groups without reporting the p-values.
   The p-values have been added to the text (page 11).
3. Re: In table 5 computer use time was entered into the model as a confounding variable. However, this variable may be an effect modifier, as table 2 shows that health complaints increase with computer use time. How would the results look like for the high users (more than 1 hour/day)?
   In the model (table 5) computer use time was set as a confounding variable, categories 1-3 hours daily and #4 hours daily were statistically significant in the logistic regression analysis.
4. Re: Page 17, 2nd paragraph, 2nd sentence: Please change “avoided” to “ruled out”.
   We have corrected the sentence.
5. Re: Page 18, 3rd paragraph, 2nd sentence: Please change “with the longer hours spent” to “with the longer time spent”.
   We have corrected the sentence.

Reviewer 2 Nathaniel Hupert
1. Re: pp. 1-4, p.6, causality vs. association:

In the view of this reviewer who has published in this field, the authors need to be far more careful in assigning causal relationships to the association of symptoms and exposures with regard to injury and computer use. They state p. 3, for example, "Results have confirmed that computer use induces pain and discomfort not only in the neck shoulder or back regions [8, 9, 10, 11, 12] but also in the hands, fingers or wrists [8, 10, 11, 12, 13] and eyes [8, 10]." But are all of these references actually strong enough to support this statement? 8 is a pilot study, the title of 9 is "The association between children's computer use and…", 10 as well uses the term "associated with" in its title, etc. They are not prospective, longitudinal, controlled studies, and to cite them in this way is not consistent with their own conclusions about the degree or necessarily even the direction of causal linkage between computer use and injury.

We have rewritten the text (Background p. 3, Discussion p. 17) and taken causality -comments into consideration.

2. This problem recurs throughout the manuscript. In the concluding sentence on p. 4 the authors use the term "risk" when the proper term should be prevalence: "The primary aim of this study … and secondly whether receiving instructions was associated with a reduced risk of computer-induced health complaints." Perhaps it seems a small point, but the distinction between risk arising from computer use and the increased odds of something occurring in association with that use is, I believe, important.

We have rewritten the text (Abstract, Background, Results, Discussion) and taken risk –term into consideration.

3. Of even greater importance, however, is the appearance of bias in the very questionnaire used in the study. One of the questions is: "Using a computer may cause health complaints (pains, aches, discomforts). Have you experienced these complaints when using a computer?" The first statement unfortunately biases any potential response to the second. Later, students are asked, "Were you ever instructed or did you instruct yourself how to avoid these health complaints?" when the term "issues", or some other more neutral word might have been better advised. In light of this, it is somewhat disingenuous of the authors to state on page 17, in the limitations, "This study was cross-sectional and causal inference on the relationship between computer time and computer-induced symptoms cannot be drawn from this study, although Finnish children commonly attributed these symptoms to computer use." Clearly, the questions these students were asked did the attribution for them! How the authors resolve this issue will go a long way to giving them new perspective on the extensive and risky use of causal language throughout the manuscript.

We have taken these comments into consideration and rewritten Introduction (page 4, para 1) and the aims of the study (page 5, para 3), and also in Discussion (page 17, para 2).
4. p. 2 Appropriateness of references:
The authors should perform another literature search to buttress their citations, since they are curiously selective and in some cases inappropriate for the particular study population at hand. For example, in a report on younger students they cite a paper on graduate students (SCHLOSSBERG, E.B., MORROW, S., LLOSA, A.E., MAMARY, E., DIETRICH, P., REMPEL, D.M. Upper extremity pain and computer use among engineering graduate students. American Journal of Industrial Medicine 2004, 46, 297-303) but leave out the following 5 studies of undergraduates, closer to their study sample's age range:

We thank for the good references and have taken them into the text (reference numbers 12 and 14).

5. Language:
The manuscript is not carefully written for an English-language audience. Here is a passage in the original and as it might be re-written to make clear the meaning and intent of the authors: "Use of computers as well as musculoskeletal symptoms have increased among adolescents. There is evidence that musculoskeletal symptoms can be reduced by ergonomics approach and education. The purpose in this study was to examine where adolescents had received ergonomic instructions related to computer use, and whether receiving instructions was associated with a reduced risk of computer-induced health complaints."(p.1)

[New]"[The u]se of computers as well as musculoskeletal symptoms have increased among adolescents. There is evidence that musculoskeletal symptoms can be reduced by [an] ergonomics approach and education. The purpose [of] this study was to [determine in what setting] adolescents had received ergonomic instructions related to computer use, and whether receiving instructions was associated with a reduced risk of computer-[associated] health complaints."

The language of the manuscript is corrected.