Reviewer's report

Title: Predicting individuals' median and range of amplitude of upper extremity trapezius muscle activity and median and range of motion of shoulder, head, neck, and torso postures during computer use: results of a field study

Version: 2 Date: 8 May 2013

Reviewer: Pascal Madeleine

Reviewer's report:

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- Major Compulsory Revisions

The authors should be complimented for having conducted an interesting study developing our knowledge on exposure assessment techniques. It appears that the manuscript is a revised version of the initial submission. However, it is impossible to know if the authors have addressed issues raised by the referees (no attached point to point answers).

The aim of this study was to evaluate predictions of the median and range of amplitude of trapezius muscle activity and the median and range of motion of shoulder, head, neck, and torso postures based on measurements collected during computer use in a real-life work setting. The authors fulfill in general this aim adequately. However, one can question from time to time the choice of the assumption made by the authors (see below) and of some of the wording (e.g. “comprehensive”). In general, the results could somehow be expected taking the number of sets of parameters used for “task-based” and “comprehensive” predictions.

Abstract:

The authors should envisage replacing “comprehensive” by another word.

Introduction:

Rephrase the first sentence - as such the link between computer work and MSD is not clearly established see e.g. review by Waersted et al (2010), Ijmker et al (2011) and Andersen et al (2008)

In the first paragraph, it can seem peculiar that the authors did not consider the duration of physical exposure as important? While the variability term is may be overrepresented.

In the second paragraph, “limited success”, please explain

Methods:

The ethical approval seems strange – Can the Harvard school/ VU ethics committees approve study conducted in NL/USA?

Give approval number
“lower biceps brachii” ??

Please elaborate the following assumption: “assumption that exposures within a task (keyboard, mouse, and idle) do not vary largely across individuals”

Torso-posture: it seems peculiar to have this as a predictor for neck-shoulder or upper extremities WMSD

103 parameters. Refer to the Appendix, why 103?

Please elaborate also the following assumption: “unbiased measurements” variables?

Results:

“There was a large range of parameters used for the comprehensive predictions (Table 5).” Compared to what? Unclear?

“one of the three task”?

Discussion

Please repeat briefly what the audience needs to understand behind the terms “task-based approach” and “comprehensive approach”

“we stoved to include all measurable…” many more parameters can be included. A statement mentioning why 103 parameters were selected would help

“One explanation for this unexplained…” rephrase

“…workstation affords different strategies for interacting with the computer…”?

The authors should specify a little more why they decided to elaborate on their previous work

Even though, this is not within the scope of the paper, the audience will expect an explanation (does it play a role, is this good or bad?) (“no previous study has demonstrated the association between range of amplitude/range of motion and the use of multiple computers simultaneously.”)

The statement made on workstation adjustability can be misunderstood, please rephrase (“adjustability of workstation chairs did not have an effect on neck and upper limb postures”)

“An important test of our predictions, which we were unable to perform in the current study but should be explored in the future, is whether they are able to predict health outcomes.” rephrase see comments on computer usage and WMSD

Add the common limitations related to the use of questionnaire (overestimation, self-bias selection, health concern) as well as critics concerning the leisure time activities

The “limited variability” was partly remediated by the use of min/max values that may have actually result in poorer prediction (inclusion of outliers)

**Level of interest:** An article of importance in its field
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare no competing interests in relation to this manuscript.