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

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Reviewer: Chih-Hsiu Cheng

Reviewer’s report:

This study attempted to predict the muscle activities of the trapezius and posture change during real-life computer work for approximately two hours at the subjects' own workstations. The authors used two kinds of methods for predictions, i.e. the task based prediction (based on the duration of the keyboard/mouse/idle tasks) and the comprehensive prediction (based on the questionnaire, workstation, and anthropometric parameters). The manuscript is generally well written, while the clinical relevance is not adequately revealed. Other concerns are as follows:

[Title]
1. The title is suggested to be shortened such that it will be easy to understand for the readers.
For example: Prediction of trapezius muscle activity and shoulder, head, neck, and torso postures during computer use: results of a field study

[Abstract]
1. The calculation of the parameters is not necessary tediously described (ex. RMS errors: the square root of the squared observed minus predicted values averaged over all participants)
2. Results: "RMS errors (relative RMS errors)... (for posture) (9-19%)." The sentence is not easy to read.
3. Conclusion: No clinical relevance is provided.

[Introduction]
1. The description "the median and range of amplitude of trapezius muscle activity and the median and range of motion of shoulder, head, neck, and torso postures" is repeatedly used in the whole article. It is suggested to use an alternative term to substitute the sentence afterwards.
2. The goal itself focuses on the methodology. There is no rationale about the importance to predict the muscle activity of the trapezius (more muscles involved in the computer work) and the shoulder/head/neck/torso motions (upper extremity movements could also lead to work-related disorders).

[Method]
1. The accuracy and reliability of the triaxial accelerometers to quantify the shoulder/head/neck/torso motion should be provided to ensure the data quality used in the prediction model.

2. The description about the "percent increase in participants..." is not clear. What is the "direct measurements" being compared with?

[Results]
1. The authors presented all the measurements in median and range of value. Thus there are similar tables and figures (ex. Table 2 and 4; Table 3 and 5). The authors are suggested to ponder which kind of data is more representative and to avoid redundancy.

2. How the finding "Hence, a smaller percent increase is needed for the comprehensive predictions than for the task based predictions" derives from? There was no comparison between the two predictions in Figure 1.

[Discussion and Conclusion]
1. The results from the "median" and "range of value" of all measurements were not used to show different stories. Again, the authors should condense the major findings.

2. The R-square values were generally low even for comprehensive prediction model which could hardly persuade the readers of its merits. The residual analysis might provide more information about how those parameters correlate with the physical exposures.

3. There was no discussion about Figure 1 such that it only provides trivial information.

4. The conclusion should be clinically relevant.

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

**Quality of written English:** Acceptable

**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.