Author's response to reviews

Title: Muscle activity and head kinematics in unconstrained movements in subjects with chronic neck pain; cervical motor dysfunction or low exertion motor output?

Authors:

Harald Vikne (harald.vikne@medisin.uio.no)
Eva S Bakke (eva.bakke@medisin.uio.no)
Knut Liestøl (knut@ifi.uio.no)
Stian R Engen (stianre77@gamil.com)
Nina Vøllestad (nina.vollestad@medisin.uio.no)

Version: 3 Date: 30 August 2013

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

We thank you for the opportunity for submitting a revised version of the manuscript. We would like to point out that we prior to the previous submitted version of the manuscript used a professional language editing company for improving the written English. This improvement has been acknowledged by the reviewers. Despite this, unfortunately there were still a few grammatical errors. After a thorough examination of the manuscript these errors are now corrected. Therefore, it does not seem to be appropriate to complete a new, additional linguistic review for the present version. We would also like to thank the reviewers for the suggestions for improvement.

All changes made to the manuscript are highlighted using **bold** font style.
Reply to the reviewers

Reviewer 1

Reviewer’s report
Title: Muscle activity and head kinematics in unconstrained movements in subjects with chronic neck pain; cervical motor dysfunction or low exertion motor output?
Version: 2 Date: 24 July 2013
Reviewer: Niamh Moloney

Reviewer’s report:
This manuscript has been edited substantially and has been much improved in the process. The following are a few minor points that I would recommend the authors consider:

1. I have highlighted a few minor typographical errors (see attached document).
Reply: These errors have been corrected. The suggestions for improvement made by the reviewer in the attached manuscript have in large been followed as suggested.

2. There are a considerable number of abbreviations used, which I would suggest reducing to improve the clarity of the paper. I have highlighted some of these abbreviations in the attached document.
Reply: We acknowledge that there are many abbreviations used in the manuscript. The following abbreviations have therefore been removed; MVC, BMI, FABQW, FABQPA, HRQOL, MCS, PCS, US, GLM, ANOVA. Some of these abbreviations are still used in the tables but are then explained in the legends.

3. In the discussion, the authors postulate that one reason for their results is patient’s pain and/or fear of pain. Could the authors support this by presenting some previous findings with respect to fear avoidance in patients with whiplash?
Reply: We postulated this hypothesis primarily because of the associations found between the scores of the fear avoidance beliefs questionnaire physical activity subscale and the scores in movement displacement, peak velocity and acceleration and rmsEMG amplitude. We have now inserted a sentence containing previous research in support of associations between fear avoidance beliefs and kinematics or force in subjects with neck pain.

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Reviewer 2

Reviewer's report
Title: Muscle activity and head kinematics in unconstrained movements in subjects with chronic neck pain; cervical motor dysfunction or low exertion motor output?
Version: 2 Date: 15 August 2013
Reviewer: Tina Juul

Reviewer's report:
I acknowledge the fact that the authors have significantly improved the manuscript by providing additional information and performing a linguistic proofreading. A few issues need to be addressed before the manuscript should be published. Please see specific comments below.

Major Compulsory Revisions
Discussion
Table 1 shows that the patients pain level increased during the test session. This needs to be addressed in term of how it might have affected the results.
Reply: We acknowledge the point made by the reviewer. It is possible that the increased pain may have affected the outcome of some variables within the WAD group. However, the present study design and number of participants does not allow for a systematic analysis of this question. The effect of increased pain on the kinematic variables can not be isolated from that of a number of other factors influencing the performance as reported in this paper. This renders the question of a possible influence of increased pain to speculations and we have therefore chosen not to include it in the paper.

Minor Essential Revisions
Abstract - results
“The groups differed significantly with regard to movement velocity, acceleration, displacement, smoothness and rmsEMG amplitude in agonist and antagonist muscles for a series of comparisons across the test conditions”. Data not shown - please present the results.
“The group differences in peak movement velocity and acceleration persisted after controlling for movement displacement”. Data not shown - please present the results.
“Controlling for differences between the groups in displacement and velocity abolished the difference in measures of movement smoothness and rmsEMG amplitude”. Data not shown - please present the results.
Common reply: Because of the large number of data in this study, we chose to present the results in summary form in wording. A complete presentation of the specific group data and between-group comparisons would require substantially increased space and render
the results section less reader-friendly. We have therefore chosen to leave this section unaltered.

Methods – movement direction
I am a little bit unsure of what took place during the head movement session. Did the participant use the dark blue dot on the wall for visual inspection, indication when they had reached their neutral head position? Please clarify.
Reply: We have rewritten the sentence concerning the intention of the reference point.

Movement speed
“The participants were allowed to practice the movement directions and speed conditions before the test started”. How many attempts were the participants allowed to perform?
Reply: No restrictions were given to the number of trials allowed. However, usually about 2-4 movements were performed. We have now inserted this information in the paper.

Supplementary methodological description
There are several grammatical errors throughout this section, which need corrected.
Reply: We have now corrected a few grammatical errors found in the supplementary methodological description.

Figure legends
The figure legends should be readable without the remaining manuscript. Therefore, abbreviations cannot solely be used.
Reply: The figure and table legends are corrected.

Discretionary Revisions
Conclusion
“...but with normal muscle activation levels and movement patterns for that velocity and displacement”. Please rephrase this sentence.
Reply: The sentence has been rewritten.

Background - overall:
I acknowledge the authors for improving the reader-friendliness and structure of the background. However, several sentences end with the phrasing “...in chronic WAD compared with controls” or “in chronic WAD as compared with healthy subjects”. It would be appropriate to change the wording form time to time.
Reply: We have now rewritten some of the sentences.

Methods – movement speeds
“First, the participants were instructed to complete all movement directions in a pace corresponding to what they perceived as their normal speed and which was termed preferred speed (P)”. Please delete ‘and’ and replace with a comma.
Reply: Done.

“Movement duration and displacement were respectively the time and angular position difference between the movement onset and offset”. Please rephrase.
Reply: The sentence is now rephrased.
Discussion
First sentence – grammatically incorrect, please rephrase.
Reply: The sentence has been corrected.

Level of interest: An article of importance in its field
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:
Declaration of competing interests: ‘I