Reviewer's report

Title: Muscle activity and head kinematics in unconstrained movements in subjects with chronic neck pain; cervical motor dysfunction or simply 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.

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.

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.

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?

Supplementary methodological description

There are several grammatical errors throughout this section, which need corrected.

Figure legends

The figure legends should be readable without the remaining manuscript. Therefore, abbreviations cannot solely be used.

Discretionary Revisions

Conclusion

“….but with normal muscle activation levels and movement patterns for that velocity and displacement”. Please rephrase this sentence.

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.

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.

“Movement duration and displacement were respectively the time and angular position difference between the movement onset and offset”. Please rephrase.

Discussion

First sentence – grammatically incorrect, please rephrase.

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 declare that I have no competing interests’. 