Reviewer's report

Title: Influence of pain location and hand dominance on neck and scapular kinematics and EMG activities: an exploratory study

Version: 2 Date: 11 May 2011

Reviewer: Charles Thigpen

Reviewer's report:

General Comments
Overall the research question is clearly stated and the initial methods appear to provide the construct to answer the question.

Specific Comments
Introduction these are minor revisions.
The introduction builds a reasonable case for the research question but reads more like a literature review. The terms neck pain, shoulder pain, and neck-shoulder pain are used interchangeably....it is important to clearly define what the authors mean by neck-shoulder pain.

Methods-all the following are Major Compulsory Revisions
Please clarify rationale as to inclusion of SCM for analysis and its impact on scapular kinematics. I am unaware of any studies showing impact of SCM on shoulder movements.

Page 5 line 13: please clearly define neck-shoulder pain. It is unclear where these patients were experiencing pain. For instance, was the shoulder pain over the greater tuberosity as compared to upper trapezius pain? Was there a physical exam performed to rule out other MSK conditions such as rotator cuff tears? Please be very clear with the pain delineation as this is a key IV for the study.

Page 7 line 6-7: please clarify if the plane of movement was the same between the dominant and non-dominant extremities. It is clear from the literature that scapular movement patterns (kinematics and EMG) are different between planes of elevation.

Page 8 line 17 please report which ICC model was used i.e., 2,1; 3,1 etc...

Page 8: was an a priori power analysis performed. Only 9 per group would seem underpowered? In addition, even if differences are observed the sample significantly limits the generalization as adding 9 more individuals per group may wash out any significant differences. In my experience scapular kinematics and EMG are highly variable and adequate sampling is crucial to interpreting complex data such as the 3 way ANOVA.
Page 8-9 Statistical analyses:
Please clearly define each IV (pain location, side, and angle). Additionally, please clarify if any adjustment was made for post-hoc analyses. How was statistical significance determined? P value or 95% CI? Please clarify. What is ES? Effect Size? If so, how was this calculated?

did you consider using NDI as a covariate? Was NDI related to any of the DV?

Page 9 line 22-23. Please provide exact p value or p< .001.

Discussion
Overall the discussion is clear. However, I would suggest the “negative” finding of lack of impact of pain on scapular kinematics is important in my opinion. While the authors note the limitation in sample size the 95% CI and SEM are greater (or equal to) each mean difference.

Page 11 line 11-12. I disagree. There is no mechanical basis that unilateral arm elevation should limit scapular motion.

Page 12 line 2-3: please provide some brief rationale as why no impact of pain?
Lack of disability as indicated by NDI? Low pain rating? Chronic, adapted patterns?

Page 12: line 13- similar to previous comment. It is unclear to me how bilateral arm movement would limit/restrict arm elevation and subsequent scapular motion. In addition since arm elevation angle was accounted for this is not a reasonable argument in my opinion.

Page 13:
Conclusion;
Given the small nature of the differences and small sample these statements are too strong. Please revise.

Figure 1: please check the headings for each graph. They do not seem to represent the data that is presented.

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests