Reviewer's report

Title: Altered muscle activity pattern in patients with chronic trapezius myalgia? A pilot study using muscle tissue velocity ultrasound (TVI)

Version: 1 Date: 24 March 2008

Reviewer: Deborah Falla

Reviewer's report:

This study utilised tissue velocity imaging to assess upper trapezius muscle tissue response during a shoulder elevation task in people with trapezius myalgia compared to healthy controls. The results show an altered response following pain provocation/exercise among the majority of patients. The results are interesting and the technique appears promising for the clinical assessment of altered neuromuscular function in people with musculoskeletal pain. However, there are some issues which should be further clarified by the authors.

Major Compulsory Revisions

1. Pain in the neck- and shoulder region at the clinical examination and on the experimental day was one of the criteria for the patients to be included in the study (Page 5). It would be beneficial if the authors report the average (mean and SD) of the patients pain at the time of the experimental session. This is necessary for the reader to appreciate the difference in the level of pain experienced by the patient in the pre and post exercise contractions.

2. How many repetitions of the exercise were performed by the patients to reach the level of 6/10 on a visual analogue scale? Further, was the number of repetitions different compared to the control group? From the current description it would appear that the control subjects performed only 6 repetitions of the exercise and this did not produce pain. Differences between groups in the number of repetitions performed (if this is the case) is an important consideration when interpreting the data. For example, if patients performed a greater number of repetitions than the control subjects then one may assume that the upper trapezius muscle was more “fatigued” for the patients. This could potentially explain the change in activation for the post exercise condition which was observed only for the patient group regardless of the presence of muscle pain. This information should be provided and discussed within the manuscript.

3. Upper trapezius motor units display non uniform behavior. This can be observed with surface EMG as non uniform activation. Can the authors confirm that the same region of interest (ROI) within the upper trapezius muscle was assessed post exercise for both groups? If not, this should be discussed as a potential confounding factor.

4. The authors should justify the use of non-parametric statistics (Mann Whitney, Wilcoxon and Fishers Exact test).
Discretionary Revisions

5. The authors report the use of surface EMG yet the results are not presented within the current version of the manuscript. It would be useful if this data was provided to see if the amount of trapezius muscle activity was modified in the patient group post ex/pain provocation. This would be particularly useful to support the observations made by the ultrasound imaging.

6. One of the main arguments presented in the introduction is that ultrasound may provide a faster, less complicated clinical approach to assess neuromuscular function in persons with myalgia. The authors should consider re-addressing this within the discussion and provide some indication of the duration of such an assessment.

Minor Essential Revisions

7. There appears to be some confusion with the figures presented in this version. The figure legends indicate that there are 5 components to Figure 5 (a-e) yet I can only see Figures 5-8 (a-d?). In addition Figures 5a and 5c (figure 5 and 7) appear identical.

8. Page 19, 3rd line from bottom – deconditioning

9. Page 20, paragraph 3 requires references to support these statements.

10. Page 21, 3rd line from bottom - delete “ordination”

What next?: Accept after minor essential revisions

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:

I declare that I have no competing interests