Reviewer's report

**Title:** Prevalence and site of muscle tenderness in adults with nonspecific neck/shoulder pain

**Version:** 2  **Date:** 19 April 2011

**Reviewer:** Ruth Defrin

**Reviewer's report:**

Andersen et al evaluated the presence of muscle tenderness in various sites in people suffering from non specific, chronic neck/shoulder pain. The clinical application of this aim, although not clearly stated was to tailor a better treatment for these people.

The design is straight forward and the results may be valuable for designing better treatment of shoulder/neck pain (although this is yet to be tested). It is also important to learn about the sensitivity ratios between the muscles in this region. There are various issues that need further clarification.

**Major Compulsory Revisions**

1. A major issue is the manner with which the authors evaluated tenderness which is the main outcome measure here. Please explain why you have conducted manual evaluation when there are numerous, inexpensive devices that can be used for this purpose (e.g. pressure algometry). This is especially important due to the fact that four examiners performed the manual evaluations. The authors report that they performed both internal validity tests and inter-rater reliability test but they do not explain how they performed these tests and how calculations were done.

2. Another concern in the evaluation scale for tenderness with "no"=0, "some"=1 and "severe"=2 scores. Please explain how you have defined "some" and "severe". Also, do the authors believe that "severe" for one examiner is similar to "severe" for another examiner? Please also provide more information on the examiners. Are they trained in palpation? Are they physiotherapists? / Physicians / Chiropractors? In this respect, on table 1 the authors present a tenderness scale of 0-32. Is it the sum total of 0-2 scale for all muscle sites? If yes this should be explained.

3. The sample is not gender balanced. Please explain why there are 7 times more females than males? Please also discuss the application of the results to the general population considering that females tend to have an increased sensitivity to pain.

4. There seem to be some mismatches in the reports. One example is the reports regarding exclusions. According to the exclusion reports on p. 4, it adds up to 425 people who were excluded from the study. However, in figure 1 it is reported...
that 348 people were excluded. Similarly, the numbers in the exclusion text on p. 5 seem not to match the numbers in Figure 1. Another example is table 2 in which the number of subjects/sites/percentages (not clear) do not seem to match (e.g. 49+28=77 not 76). Also, on p. 7 the authors report that in 1 out of 174 females there was severe tenderness in the deltoid muscle, namely 0.5% and not 1% as written on table 2.

5. The low weighted kappa values may result from various reasons: manual measurement, 4 different examiners, and a tenderness scale that does not allow for much sensitivity. Please discuss this in light of your conclusion (p. 9) that the method provides "reliable information on muscle tenderness". A limitation section would be appropriate.

Minor Essential Revisions:

1. Please state in the introduction the aim of the study. In the last sentence on p. 4, you might want to replace the word "evaluates" with "determines".
2. Why was blood pressure measured?
3. Not clear how the authors used the pinch grip to test internal validity of manual tests (p. 5). This is very important and merit explanation. Also, not clear is the report on 20 volunteers that participated in the preliminary validity process but then later, the authors report test-retest reliability on 64 participants.
4. The tables seem to miss titles.
5. On table 2 the authors report results from Levator Scapulea muscle and origin. Why these two locations? In the result section only the first one is reported.
6. Table 2- between gender differences in prevalence or in tenderness intensity?
7. What is "higher sensation of pain?" (p. 10)

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

Quality of written English: Acceptable

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'