Reviewer's report

**Title:** Pressure pain sensitivity maps of the neck-shoulder and the low back regions in males and females

**Version:** 1  **Date:** 15 June 2010

**Reviewer:** Esa-Pekka Takala

**Reviewer's report:**

Pressure pain sensitivity is a common finding in clinical practice and has been adapted as an "objective" sign for several musculoskeletal disorders. Palpation result is, however, highly dependent on the examiner and so use of algometry has resulted to better objectivity. Research has shown anatomic and gender variation in pressure pain threshold (PPT). Mapping of PPT by anatomic areas is a new and welcome way to further help understanding of phenomena related to PPT. So the subject of this manuscript is well in the focus of the journal.

This mostly well-written manuscript has clear and relevant research questions. The methods seem to be appropriate and well described, and the data are sound. The analysis and reporting follow the standards of scientific work.

There are some minor points to be addressed further. The comments are pointed with abbreviations as follows according to the standard of the journal:

- **DR:** Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
- **MER:** Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
- **MCR:** Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

I have started page numbers from the title page (in the future I would prefer to see the page and line numbers already printed in the submission).

1. **DR.** p. 1: The title could be more precise

"Pressure pain sensitivity maps of the neck-shoulder and the low back regions in healthy men and women" (males and females are preferred in animal studies)
- Replace males and females with men and women in text, too

2. **MER,** p. 2. Abstract (and also in main text)

In the presentation of results, effect size with confidence intervals should be used in state of p-values to help the readers understand the findings. E.g. in Abstract
-> Results: (p.2, last line) "... but there were significant difference between subdivisions in the trapezius with lowest values in the upper trapezius (P<0.001)."

3. **MER,** p. 5: Experimental protocol
The anatomic location of central points shall be clarified. Were these locations on the spinal processes or sometimes on the ligaments between the bony processes? If the location was defined by absolute distances only, the later is possible. In discussion (p. 9, 1st paragraph of Discussion) you state "... musculo-tendinous tissue was more sensitive to pressure than the bones", which refers to measurement points on spinal processes. Also you write about "... measurements on the spine part" (p.11, line 4). Please clarify and correct the description on text referring to the cervico-thoracic as well to the lumbar area.

- p. 5, 3rd paragraph, line 3: "spinal cord" is obviously an anatomic misnomer here (you did not press hard enough to break the bony spinal canal ;)

4. MER, Experimental protocol
What was the posture of the person during the measurements? Sitting / standing erect or lying prone?

5. MER, Results
Note that "statistical significance" depends on p-value function and is highly dependent on the sample size. Therefore, with each new item - please - start with the measured values and tell the reader first the effect size rather than p-values.

- p. 7, last paragraph. It is not necessary to state the p-values for correlation coefficients that are as high as 0.8.

- Tell the readers the main findings in words rather than state that "there was a difference" without pointing which one of the items was greater / larger / lower etc.

E.g. p. 8, 1st paragraph:
the essential information can be written in fewer words like
"Men had generally higher PPT than women (357.1±3.8 vs. 328.9±3.6 kPa; P<0.001). The individually normalized PPT increased from the upper to lower trapezius independently of the gender or the left / right body side (see Table 1 and Figure 3)."

- Rewrite the other results accordingly. E.g. tell that the PPT values were highest on the lumbar spine (use this anatomical expression in state of "center" in text, tables and figures)

6. MER, Results
The F-values give no extra information to the p-values, if the sample size is known. The reader is interested on the effect size and about the probability to get this result by chance, which is given by confidence intervals or p-values. So the F-values here are visual noise and can be omitted to make the text easier to read.

7. MER, p.10, 2nd paragraph. “The pressure pain maps of the upper and low
back region were non-uniform with no gender differences.”
I did not understand. What did you mean by "non-uniform". Please, clarify.

8. MER, Conclusion
"... provides the basis for further clinical studies on e.g. chronic low back pain or osteoporosis"
This was a bit obscure. Or may it come clear if you clarify that the measurement points were on back bone and the PPT was generally higher over the bones than over the muscles.
Please, clarify.

**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.

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