Reviewer's report

Title: The effect of mental stress on lumbar position sense acuity

Version: 1 Date: 9 December 2004

Reviewer: Mikael Bergenheim

Reviewer's report:

General
This is a very interesting paper, evaluating an interesting idea, namely the effect of mental stress on lumbar position sense. It is well written and I think that the conclusions are motivated by the results.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Page 4 first par: the references on line 5 should be (3-6) or even eliminated completely since the references are given below anyway.
Page 5 end of par 1. "Text for this section" should be removed
Page 13, first par: references (31)(28) should be (28; 31)
Page 15. reference 4: spelling error "... increasse with..."
Page 18 ref 28: spelling error "and Haereflex in..."
Top of page 19: "RefType: Abstract " should be removed
Table 1. I find it someone confusion that the term stress 2 is used instead of novelty stress in the table.

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Discretionary Revisions (which the author can choose to ignore)

Methods:
I certainly would have appreciated a figure of the experimental set up. How were the arms positioned? A figure might also give the reader an idea of which muscles might have been used in the active tasks.

The subjects were both female and male. Were there any gender differences? Previous studies have indicated a higher sensitivity of the muscle spindle system in females.

Discussion:

The idea of mental stress influencing proprioception in a negative way is most relevant in the discussion of work related musculoskeletal disorders as briefly mentioned by the authors in the Background. I would like to see a short discussion about how relevant this paper is for the real-life work situation. In working life one might hypothesise that the stress load is quite different both in
quality and quantity to the experimental set up of this paper. How does the electrical shock stressor relate to the stress of e.g., not being happy at work, or knowing that you might be the next person in line to be fired? How does the acute experimental situation relate to the chronic stress exposure in a work situation?

This study was performed on healthy subjects. Do the authors think that the results would have been different if they had used subjects with e.g., low back pain or even trapezius myalgia? This patients are believed to have a general sensitisation throughout the whole spinal cord. Could a study like that be of interest?

This is a paper presenting absence of evidence. I do think that the authors are well aware of this and I do not think that their conclusions are to dramatic. It is a well balanced paper in my opinion. However, it would have been nice to see that their method of measuring position sense could detect some changes (there is of course a difference between active-passive). Wouldn’t it have been a good idea to use an exposure already known to influence proprioception (e.g., fatigue, vibration, pain) to relate the absence of effects to? Could you comment on this?

Table 1. Is it really relevant to look at non-standardised mean values of blood pressure and heart rate of 14 subjects? It should either be standarised or expressed in terms of change (like it is in the text).

What next?: Accept after minor essential revisions

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

Quality of written English: Acceptable

Declaration of competing interests:

I declare that I have no competing interests