Reviewer's report

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

Version: 1 Date: 22 December 2004

Reviewer: Kermit G Davis

Reviewer's report:

General

Overall, I think it is an interesting topic but I have some reservation with respect to what the authors call as mental stress. The use a study design that uses the threat of electrical shock but never actually initiates the shock. So I am not sure to what level this causes mental stress or psychological stress. I am also not sure how this type of "mental stress" compares to real world situations. The write-up about the experimental design is very confusing. There also seems to be some statistical power issues since there will small numbers and some non-significant statistical results. The manuscript has a nice discussion section and sets up the study well in the introduction.

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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)

Introduction:
Pg. 5 last sentence
The hypothesis seems very vague since if it is proven wrong you are attributing it to something totally unknown. I would recommend a re-write of this sentence.

Methods:
Pg. 6. para1.
Need to better define “stress” and “novelty stress” conditions. Not clear.

Pg. 6 Par. 1.
The experimental design was very confusing. This section needs to be better organized with more description and clarity. Why not randomize the conditions? It seems lack of randomization may create bias.

P.9 Par. 1
How does the type of stress—from threat of electrical shock compare to real world situations? Does the current study design minimize the effect of the threat since no shock was ever given especially for the later trials? There seems to be potential confounding going on with the knowledge that the probability of ever having shock goes down with no actual signal.

Several limitations need to be addressed:
Low number of subjects, lack of power
Short term exposure to stress might minimize effects
Stress may be greater when shock has actually been given (e.g. there is an actual threat)

Discretionary Revisions (which the author can choose to ignore)
None

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

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